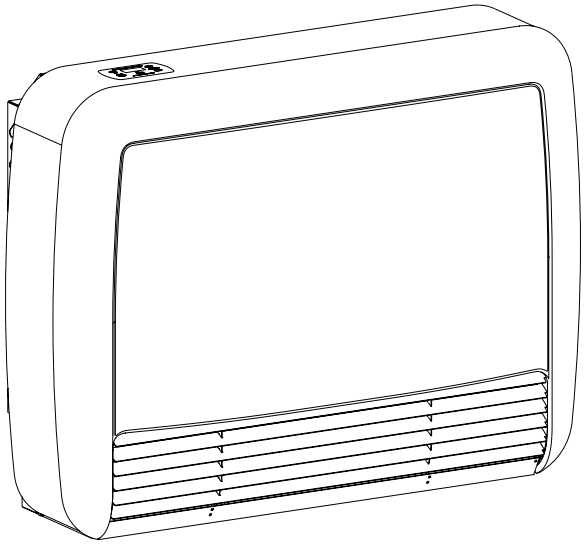
OWNER'S MANUAL AND INSTALLATION INSTRUCTIONS

EMPIRE® Heating Systems

US★90 ULTRASAVER★90PLUS



ULTRASAVER 90 PLUS WALL FURNACE

MODELS
PVS18(N,P)-1
PVS35(N,P)-1

DESIGN CERTIFIED

Attention: Check local codes for venting requirements.

Installer: Leave this manual with the appliance.
Consumer: Retain this manual for future reference.

WARNING: If the information in these instructions are not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

— **Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.**

— **WHAT TO DO IF YOU SMELL GAS**
- **Do not try to light any appliance.**
- **Do not touch any electrical switch; do not use any phone in your building.**
- **Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.**
- **If you cannot reach your gas supplier, call the fire department.**

— **Installation and service must be performed by a qualified installer, service agency or the gas supplier.**

WARNING: If not installed, operated and maintained in accordance with the manufacturer's instructions, this product could expose you to substances in fuel or from fuel combustion which can cause death or serious illness.

Young children should be carefully supervised when they are in the same room as the appliance.

If installed in a direct-vent application, this appliance may be installed in an aftermarket, permanently located, manufactured home or mobile home, where not prohibited by state or local codes.

This appliance is only for use with the type of gas indicated on the rating plate. This appliance is not convertible for use with other gases, unless a certified kit is used.

Carton Contents:
UltraSaver 90 Plus Wall Furnace (with shroud attached)
Instruction Envelope Containing:
- Owner's Manual and Installation Instructions
- Shut-off Valve
- 2-1/2" Hose Clamp
- Hardware Pack Containing:
  - (4) - #10 x 1-1/2" Hex Head Screws
  - 4' - 3/8 I.D. Condensate Drain Hose

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IMPORTANT SAFETY INFORMATION

THIS IS A HEATING APPLIANCE

Safety markings are frequently used in this manual to designate a degree or level of seriousness and should not be ignored.

⚠ **DANGER**: Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠ **WARNING**: Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠ **CAUTION**: Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

Notice: Addresses practices not related to personal injury.

⚠ WARNING

This appliance must be installed and repaired by a qualified service person. Installers who are not familiar with the installation of the UltraSaver and have questions, should contact Empire Comfort Systems, Inc. prior to installing the appliance to avoid creating a hazardous operating condition.

- **Due to high temperatures the appliance should be located out of traffic and away from furniture and draperies.**
- **Children and adults should be alerted to the hazards of high surface temperatures and should stay away to avoid burns or clothing ignition.**
- **Young children should be carefully supervised when they are in the same room as the appliance.**
- **Clothing or other flammable material should not be placed on or near the appliance.**
- **Any safety screen or guard removed for servicing an appliance, must be replaced prior to operating the appliance.**
- **Keep burner and control compartment clean.**
- **For manufactured home or mobile home or residential installation convertible for use with natural gas and liquefied petroleum gases when provision is made for the simple conversion from one gas to the other.**
- **Do not block warm air discharge. Do not allow anyone to sleep directly in front of the wall furnace.**

⚠ WARNING

The appliance should be inspected before use and at least annually by a qualified service person. More frequent cleaning may be required due to excessive lint from carpeting, bedding materials, etc. It is imperative that control compartments, burners and circulating air passageways of the appliance be kept clean.

- **DO NOT put anything around the appliance that will obstruct the flow of combustion and ventilation air.**
- **DO keep the appliance area clear and free from combustible material, gasoline and other flammable vapors and liquids.**
- **Do examine venting system periodically and replace damaged parts.**
- **Do make a periodic visual check of burner. Clean and replace damaged parts.**
- **DO NOT use the appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.**
- **DO NOT operate this appliance without the front panel installed.**

Note to the Installer

1. The installer must leave instruction manual with owner after installation.
2. The installer must have the owner fill out and mail registration card supplied with the wall furnace or register the wall furnace online at www.empirezoneheat.com.
3. The installer should show the owner how to start and operate wall furnace and thermostat.
4. The installer must locate wall furnace near a grounded wall receptacle for 115VAC power and must provide gas supply and vent the wall furnace properly for safe operation.

SAFETY INFORMATION FOR USERS OF LP-GAS

Propane (LP-Gas) is a flammable gas which can cause fires and explosions. In its natural state, propane is odorless and colorless. You may not know all the following safety precautions which can protect both you and your family from an accident. Read them carefully now, then review them point by point with the members of your household. Someday when there may not be a minute to lose, everyone's safety will depend on knowing exactly what to do. If, after reading the following information, you feel you still need more information, please contact your gas supplier.

LP-GAS WARNING ODOR

If a gas leak happens, you should be able to smell the gas because of the odorant put in the LP-Gas.
That's your signal to go into immediate action!

- Do not operate electric switches, light matches, use your phone. Do not do anything that could ignite the gas.
- Get everyone out of the building, vehicle, trailer, or area. Do that IMMEDIATELY.
- Close all gas tank or cylinder supply valves.
- LP-Gas is heavier than air and may settle in low areas such as basements. When you have reason to suspect a gas leak, keep out of basements and other low areas. Stay out until firefighters declare them to be safe.
- Use your neighbor's phone and call a trained LP-Gas service person and the fire department. Even though you may not continue to smell gas, do not turn on the gas again. Do not re-enter the building, vehicle, trailer, or area.
- **Finally,** let the service man and firefighters check for escaped gas. Have them air out the area before you return. Properly trained LP-Gas service people should repair the leak, then check and relight the gas appliance for you.

NO ODOR DETECTED - ODOR FADE

Some people cannot smell well. Some people cannot smell the odor of the chemical put into the gas. You must find out if you can smell the odorant in propane. Smoking can decrease your ability to smell. Being around an odor for a time can affect your sensitivity or ability to detect that odor. Sometimes other odors in the area mask the gas odor. People may not smell the gas odor or their minds are on something else. Thinking about smelling a gas odor can make it easier to smell.

The odorant in LP-gas is colorless, and it can fade under some circumstances. For example, if there is an underground leak, the movement of the gas through soil can filter the odorant. Odorants in LP-Gas also are subject to oxidation. This fading can occur if there is rust inside the storage tank or in iron gas pipes.

The odorant in escaped gas can adsorb or absorb onto or into walls, masonry and other materials and fabrics in a room. That will take some of the odorant out of the gas, reducing its odor intensity.

LP-Gas may stratify in a closed area, and the odor intensity could vary at different levels. Since it is heavier than air, there may be more odor at lower levels. Always be sensitive to the slightest gas odor. If you detect any odor, treat it as a serious leak. Immediately go into action as instructed earlier.

SOME POINTS TO REMEMBER

- Learn to recognize the odor of LP-gas. Your local LP-Gas Dealer can give you a "Scratch and Sniff" pamphlet. Use it to find out what the propane odor smells like. If you suspect that your LP-Gas has a weak or abnormal odor, call your LP-Gas Dealer.
- If you are not qualified, do not light pilot lights, perform service, or make adjustments to appliances on the LP-Gas system. If you are qualified, consciously think about the odor of LP-Gas prior to and while lighting pilot lights or performing service or making adjustments.
- Sometimes a basement or a closed-up house has a musty smell that can cover up the LP-Gas odor. Do not try to light pilot lights, perform service, or make adjustments in an area where the conditions are such that you may not detect the odor if there has been a leak of LP-Gas.
- Odor fade, due to oxidation by rust or adsorption on walls of new cylinders and tanks, is possible. Therefore, people should be particularly alert and careful when new tanks or cylinders are placed in service. Odor fade can occur in new tanks, or reinstalled old tanks, if they are filled and allowed to set too long before refilling. Cylinders and tanks which have been out of service for a time may develop internal rust which will cause odor fade. If such conditions are suspected to exist, a periodic sniff test of the gas is advisable. **If you have any question about the gas odor, call your LP-gas dealer. A periodic sniff test of the LP-gas is a good safety measure under any condition.**
- If, at any time, you do not smell the LP-Gas odorant and you think you should, assume you have a leak. Then take the same immediate action recommended above for the occasion when you do detect the odorized LP-Gas.
- If you experience a complete "gas out," (the container is under no vapor pressure), turn the tank valve off immediately. If the container valve is left on, the container may draw in some air through openings such as pilot light orifices. If this occurs, some new internal rusting could occur. If the valve is left open, then treat the container as a new tank. Always be sure your container is under vapor pressure by turning it off at the container before it goes completely empty or having it refilled before it is completely empty.

REQUIREMENTS FOR MASSACHUSETTS

For all side wall horizontally vented gas fueled equipment installed in every dwelling, building or structure used in whole or in part for residential purposes, including those owned or operated by the Commonwealth and where the side wall exhaust vent termination is less than seven feet above finished grade in the area of the venting, including but not limited to decks and porches, the following requirements shall be satisfied:

1. INSTALLATION OF CARBON MONOXIDE DETECTORS. At the time of installation of the side wall horizontal vented gas fueled equipment, the installing plumber or gasfitter shall observe that a hard wired carbon monoxide detector with an alarm and battery back-up is installed on the floor level where the gas equipment is to be installed. In addition, the installing plumber or gasfitter shall observe that a battery operated or hard wired carbon monoxide detector with an alarm is installed on each additional level of the dwelling, building or structure served by the side wall horizontal vented gas fueled equipment. It shall be the responsibility of the property owner to secure the services of qualified licensed professionals for the installation of hard wired carbon monoxide detectors
   a. In the event that the side wall horizontally vented gas fueled equipment is installed in a crawl space or an attic, the hard wired carbon monoxide detector with alarm and battery back-up may be installed on the next adjacent floor level.
   b. In the event that the requirements of this subdivision can not be met at the time of completion of installation, the owner shall have a period of thirty days to comply with the above requirements; provided, however, that during said thirty day period, a battery operated carbon monoxide detector with an alarm shall be installed.

2. APPROVED CARBON MONOXIDE DETECTORS. Each carbon monoxide detector as required in accordance with the above provisions shall comply with NFPA 720 and be ANSI/ UL 2034 listed and IAS certified.

3. SIGNAGE. A metal or plastic identification plate shall be permanently mounted to the exterior of the building at a minimum height of eight feet above grade directly in line with the exhaust vent terminal for the horizontally vented gas fueled heating appliance or equipment. The sign shall read, in print size no less than one-half (1/2) inch in size, **"GAS VENT DIRECTLY BELOW. KEEP CLEAR OF ALL OBSTRUCTIONS".**

4. INSPECTION. The state or local gas inspector of the side wall horizontally vented gas fueled equipment shall not approve the installation unless, upon inspection, the inspector observes carbon monoxide detectors and signage installed in accordance with the provisions of 248 CMR 5.08(2)(a) 1 through 4.
   (b) EXEMPTIONS: The following equipment is exempt from 248 CMR 5.08(2)(a)1 through 4:
      1. The equipment listed in Chapter 10 entitled "Equipment Not Required To Be Vented" in the most current edition of NFPA 54 as adopted by the Board; and
      2. Product Approved side wall horizontally vented gas fueled equipment installed in a room or structure separate from the dwelling, building or structure used in whole or in part for residential purposes.
   (d) MANUFACTURER REQUIREMENTS - GAS EQUIPMENT VENTING SYSTEM NOT PROVIDED. When the manufacturer of a Product Approved side wall horizontally vented gas fueled equipment does not provide the parts for venting the flue gases, but identifies "special venting systems", the following requirements shall be satisfied by the manufacturer:
      1. The referenced "special venting system" instructions shall be included with the appliance or equipment installation instructions; and
      2. The "special venting systems" shall be Product Approved by the Board, and the instructions for that system shall include a parts list and detailed installation instruction.
   (e) A copy of all installation instructions for all Product Approved side wall horizontally vented gas fueled equipment, all venting instructions, all parts lists for venting instructions, and/or all venting design instructions shall remain with the appliance or equipment at the completion of the installation.

State of Massachusetts: The installation must be made by a licensed plumber or gas fitter in the Commonwealth of Massachusetts.

GENERAL SAFETY INFORMATION

⚠ WARNING

The safety information listed below must be followed during the installation, service, and operation of this product. Failure to following the safety recommendations could result in possible damage to the equipment, serious personal injury, or death.

General Information
This series is designed certified in accordance with American National Standard/CSA Standard Z21.86 and CSA IR 1.10 as a power vent wall furnace to be installed according to these instructions.

Any alteration of the original design, installed other than as shown in these instructions will be the responsibility of the person and company making the changes, and will void the warranty. This product may not be used with any type of gas other than what is shown on the rating plate unless converted using an Empire approved conversion kit.

Installation
Installation and replacement of gas piping, gas utilization equipment or accessories, and the repair and servicing of this equipment must be performed by a qualified agency. The term "qualified agency" means any individual, firm, corporation or company which either in person or through a representative is engaged in and is responsible for (a) the installation or replacement of gas piping or (b) the connection, installation, repair or servicing of equipment, who is experienced in such work, familiar with all precautions required and has complied with all the requirements of the authority having jurisdiction.

- This installation must conform with local codes, or in the absence of local codes, the National Fuel Gas Code, NFPA 54/ANSI Z223.1.
- This appliance, when installed, must be electrically grounded in accordance with local codes or. In the absence of local codes, with the National Electrical Code, ANSI/NFPA 70.
- Provide adequate clearances around the wall furnace for servicing and ensure there are no obstructions to the combustion air intake situated at the back of the wall furnace. Refer to Pages 16 and 17.
- **This wall furnace is equipped with a three-prong [grounding] plug for your protection against shock hazard and should be plugged directly into a properly grounded three-prong receptacle. Do not cut or remove the grounding prong from this plug.** For an ungrounded receptacle, purchase an adapter with two prongs and a wire for grounding.

A manufactured home (USA only) or mobile home OEM installation must conform with the Manufactured Home Construction and Safety Standard, Title 24 CFR, Part 3280, or when such a standard is not applicable, the Standard for Manufactured Home Installations, ANSI/NCSBCS Z225.1, or Standard for Gas Equipped Recreational Vehicles and Mobile Housing, CSA Z240.0.

Installation in Residential Garages
Gas utilization equipment in residential garages shall be installed so that all burners and burner ignition devices are located not less than 18 inches (457 mm) above the floor. The equipment shall be located, or protected, so it is not subject to physical damage by vehicles.

Operation of Wall furnace During Construction
The wall furnace shall not be used during construction.

⚠ WARNING

Any change to this wall furnace or its control can be dangerous.

⚠ WARNING

This is a heating appliance and any panel, door or guard removed for servicing the appliance must be replaced prior to operating the appliance.

Notice: During initial firing of this wall furnace, residual oil from the heat exchanger may bake off and smoke may occur. Provide adequate ventilation to the area where the wall furnace is installed to prevent triggering of smoke alarms. Refer to page 34 for more detail.

Additional code information listed below is for reference purposes only and does not necessarily have jurisdiction over local or state codes. Always consult with local authorities before installing any gas appliance.

Combustion and Ventilation Air
U.S.: National Fuel Gas Code NFPA 54/ANSI Z223.1(NFGC), Air for Combustion and Ventilation.

Electrical Connections
U.S.: National Electrical Code (NEC) ANSI/NFPA 70

Gas Piping and Gas Pipe Pressure Testing
U.S.: NFGC and National Plumbing Codes

General Installations
U.S.: Current edition of the NFGC and NFPA 90B. For copies contact the National Fire Protection Association Inc., Batterymarch Park, Quincy, MA 02269 or American Gas Association, 400 N. Capitol, N.W., Washington DC 20001 or www.NFPA.org.

Safety
U.S.: NFGC NFPA 5/ANSI Z223.1

US★90

ULTRASAVER★90PLUS

OWNER'S MANUAL AND OPERATION INSTRUCTIONS

EMPIRE COMFORT SYSTEMS

www.empirezoneheat.com

Before You Start

1. Verify there is electrical power to the wall furnace.

Verify the Main Power Switch is turned on. **See Figure 1.**

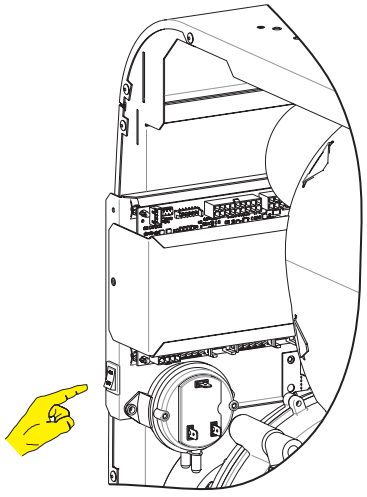


Figure 1

If electrical power is present, the red and green control board LED's will begin to flash alternately. **See Figure 3.** Each light will flash four times then the wall furnace will enter standby mode. While in remote mode, the green LED will flash slowly and the display panel will show a double dash " - - ". **See Figure 2.**

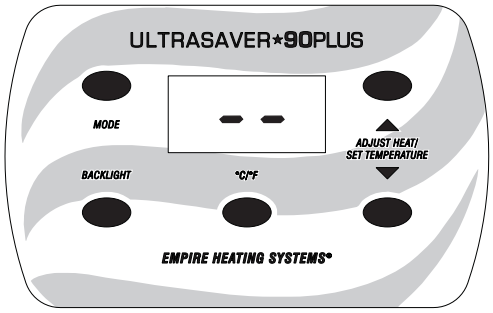


Figure 2

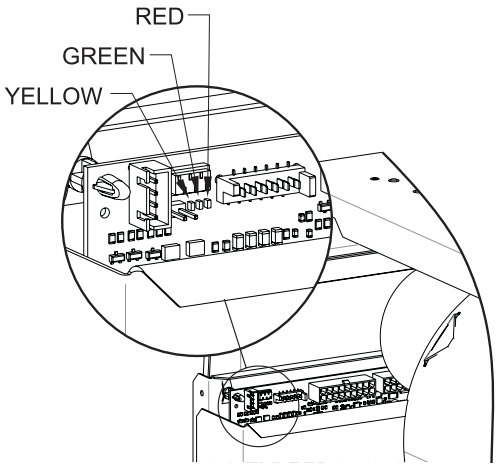


Figure 3

If the control board LED's do not activate, verify the wall furnace is plugged in and the breaker is on. If the wall furnace is still not activated, contact a qualified service technician.

2. Verify the main gas supply to the unit is on.

The shutoff valve should be in the "OPEN" position. **See Figure 4.**

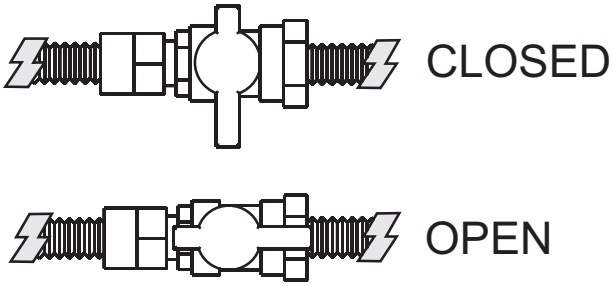


Figure 4

Starting the Wall Furnace

The wall furnace has three modes for controlling operation: Remote, Manual and Local. When in Remote mode, the wall furnace can be operated by an external Millivolt thermostat, remote control, or on/off wall switch. When in Manual mode, the wall furnace can be turned on and off and the heat level adjusted manually from the display panel. When operating in Local mode, the owner sets a desired room temperature on the display panel and the wall furnace will automatically turn on and off and adjust the heat level to achieve the set temperature.

Wall Furnace Operation - Remote Mode (External Millivolt Thermostat or Remote)

To initiate the wall furnace Remote mode, press the "Mode Select" button on the wall furnace display panel once from OFF mode to display a double dash " - - ". **See Figure 5.**

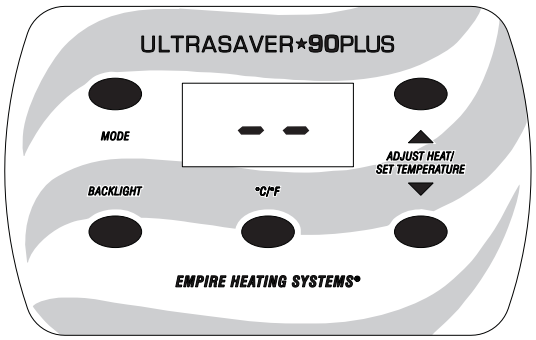


Figure 5

2. When the external control is activated, the wall furnace display panel will illuminate and show the heat level along with the remote signal symbol. The wall furnace will begin the start up sequence automatically. **See Figure 6.**

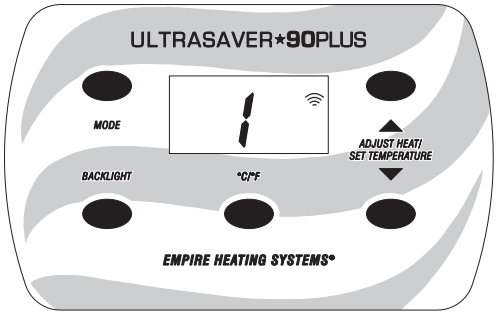


Figure 6

Notice: When a Millivolt thermostat or on/off switch is used, the wall furnace will only operate on high (Level 5).

Notice: When operating in Remote mode, a button sequence may be used to lock the display panel. See page 12.

3. If a Millivolt thermostat or thermostatic remote is used, set to the desired room temperature. The wall furnace will turn on and off automatically in response to the thermostat.

Wall Furnace Operation - Manual Mode

Notice: When operating the wall furnace in Manual mode from the display panel, only basic operations are available: On, off and heat level adjustment.

1. To operate the wall furnace in Manual mode, press the "Mode Select" button on the display panel twice from off mode until a number appears in the Heat Level location on the display panel. **See Figure 7.** The wall furnace will begin the start up sequence.

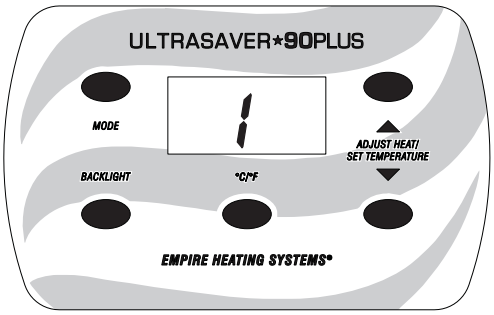


Figure 7

2. Use the UP and DOWN adjustment buttons on the right of the display panel to set the desired level. The display will illuminate and the word "SET" will appear in the top right corner of the display. After the level is set, the display panel will darken and the heat level will be displayed.

Wall Furnace Operation - Local Mode (Internal Thermostat)

1. To operated the wall furnace in Local (thermostatic) mode, press the Mode Select button on the wall furnace display panel three times from the off mode. The display panel will show the current room temperature. **See Figure 8.**

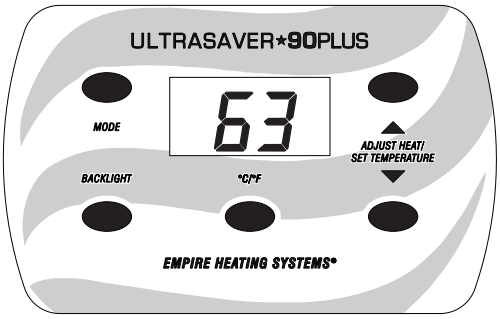


Figure 8

Notice: The temperature sensing probe is built into the left rear of the wall furnace. A kit to relocate the probe is available. See page 15.

2. Use the up and down adjustment buttons on the display panel to set the desired room temperature.

   The display will illuminate and the word "SET" will appear in the top right corner of the display. **See Figure 9.** After the temperature is set, the display panel will darken and return to displaying the room temperature.

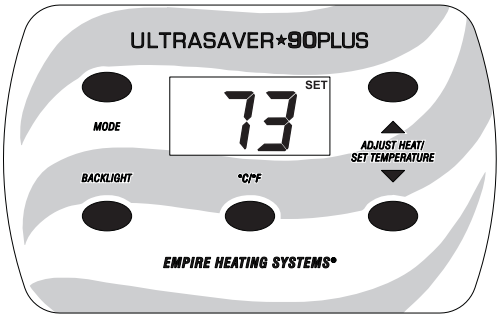


Figure 9

3. When the room temperature drops to 3°F below the set temperature, the wall furnace will begin the start up sequence.
4. The wall furnace will automatically adjust the starting level to meet the heat demand.

Notice: The greater the difference between the room and desired temperatures the higher the starting level.

As the room temperature nears the desired temperature the level will decrease.

5. The wall furnace will turn off if the room temperature rises slightly above the set temperature when operating at level 1.

Notice: The wall furnace will adjust the heat level in order to reach a point of equilibrium between the room and desired temperatures. This may cause the wall furnace to operate for long periods of time at low levels.

When the backlight button is pushed, the display will cycle between the level, set temperature and room temperature.

Notice: While the wall furnace is operating in Local mode, the display will only show the room temperature unless the backlight button is pushed.

Wall Furnace Operations Sequence

1. When the main power switch is turned on, the red and green control board LED's will begin to flash alternately. If using the FRBTPL Remote accessory (page 15) the remote receiver will search for the remote transmitter's signal. **See Figures 10 and 11.**

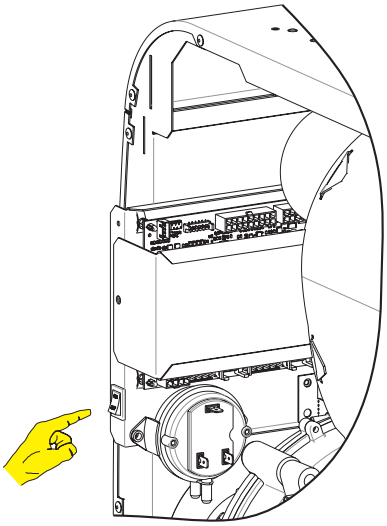


Figure 10

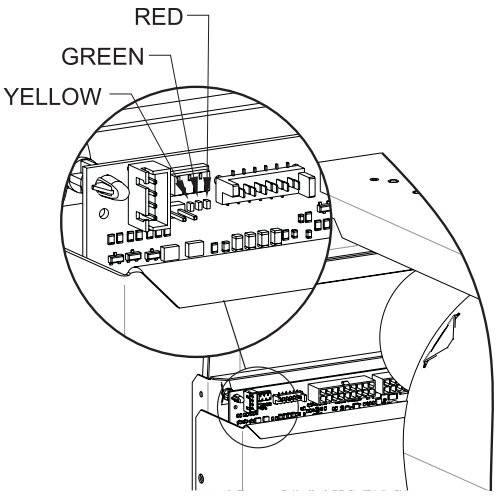


Figure 11

Each light will pulse four times then the wall furnace will enter Remote mode. While in Remote mode, the green LED will flash slowly and the display panel will shown a double dash "- -". **See Figure 12.**

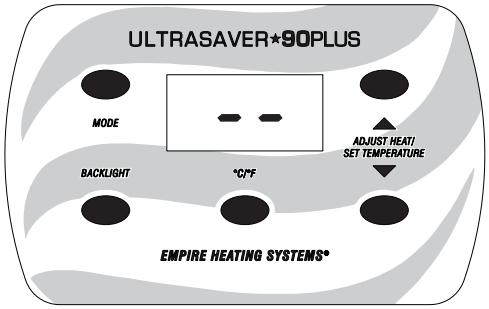


Figure 12

2. When a call for heat is received, the wall furnace display panel will illuminate and show the level. **See Figure 13.**

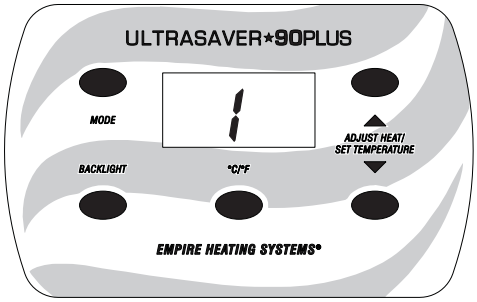


Figure 13

3. Adjust level with the up and down adjustment buttons in Manual Mode. If operating in Local mode, the heat level will adjust automatically.
4. The red and green control panel LED lights will begin to flash alternately while the wall furnace performs a safety test. After approximately 45 seconds the test will complete and the wall furnace will prepare to ignite.
5. After the safety test is complete, the ignitor will glow red and the burner will light within approximately 30 seconds.

Notice: If the burner fails to light, the wall furnace will retry the ignition sequence three times then enter lock-out mode if it fails to light. See page 37 for the fault codes and their meanings.

6. After the burner lights, the flame icon on the display panel will appear and the wall furnace will automatically adjust to the heat level shown on the display. The wall furnace will always ignite on Level 5 (High) prior to adjusting to the heat level shown on the display panel. **See Figure 14.**

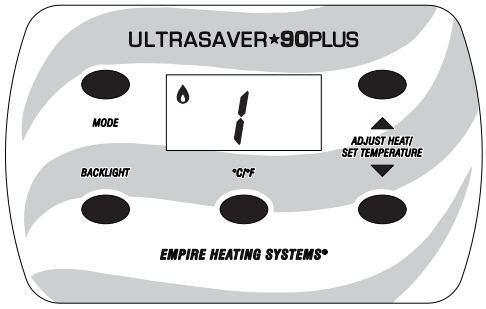


Figure 14

7. The blower will activate after 45 to 70 seconds depending on heat level. The blower will automatically adjust its speed to match the heat level. The blower speed will be indicated on the display panel. **See Figures 16 to 19.**
8. The heat level can be adjusted either up or down at any point during the wall furnace's operation in Manual Mode. If using the Local mode, the wall furnace adjusts the level automatically.

Notice: When changing from a low heat level to a higher heat level, the wall furnace will automatically increase to Level 5 (High) prior to proceeding to the desired heat level. This is to ensure consistent operation.

9. When the wall furnace is shut down, the inducer will operate at full power for approximately 10 seconds after the burner is extinguished. This is to clear any flue products from the wall furnace's combustion chamber. The circulating air blower will continue to operate from 100 to 160 seconds to ensure the wall furnace cools sufficiently.

Turning the Wall Furnace Off - Display Panel

To turn the wall furnace off from the display panel, press the "Mode Select" button on the wall furnace display panel until the panel turns off.

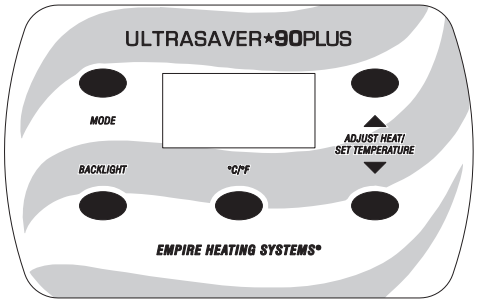


Figure 15

The burner will instantly go off, but the circulating air blower will continue to operate from 100 to 160 seconds to ensure the wall furnace cools off.

Power Interruption

The wall furnace requires a 115VAC power source to operate. See Specifications on page 16.

When power is restored to the wall furnace after a power interruption, the wall furance will automatically reactivate in "Remote" (--) mode and all operation settings will have reset to the factory defaults. If the wall furnace is normally operated using Manual mode or with the built-in thermostat, the operation settings will need to be manually reset to the desired mode and settings to resume operation.

Installing an optional Millivolt thermostat allows the wall furnace to automatically resume operation once power is restored.

Circulating Air Blower Operation

The circulating air blower is operated by a built in timer. The blower will activate after approximately 45 to 70 seconds depending on heat level. The blower will automatically adjust its speed to match the heat level. The blower icon and speed are indicated on the display panel. **See Figures 16 to 19.**

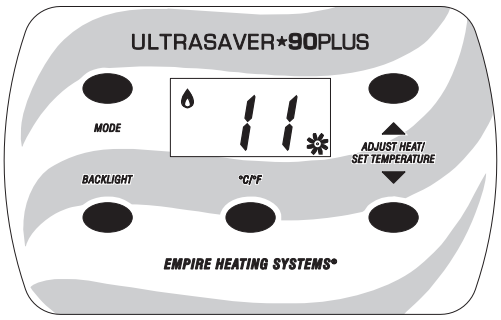


Figure 16 - Heat Levels 1 and 2, Blower Speed 1

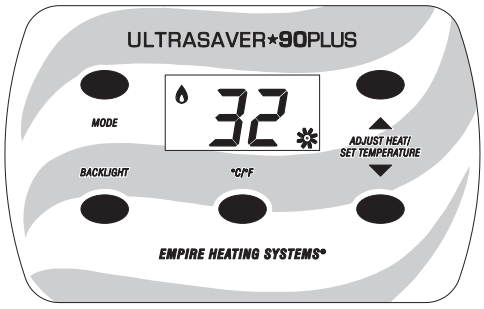


Figure 17 - Heat Level 3, Blower Speed 2

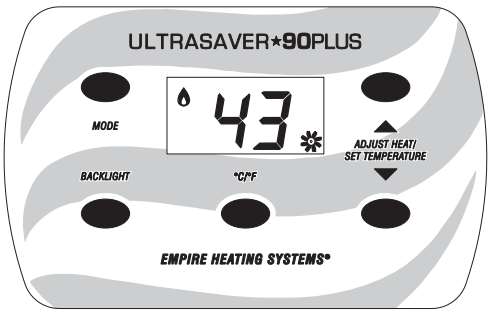


Figure 18 - Heat Level 4, Blower Speed 3

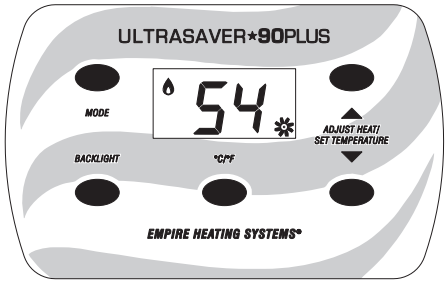


Figure 19 - Heat Level 5, Blower Speed 4

After the wall furnace is turned off, the blower will continue to operate for 100 to 160 seconds to ensure the wall furnace cools sufficiently.

Notice: When the wall furnace is turned off, the blower speed will be displayed while it is running.

Humidifier Operation

With the optional humidification tray kit (page 15), as the wall furnace operates condensate is collected and transferred to a pan in the bottom of the wall furnace. When the condensate reaches a certain level, a heating element evaporates the water into the air stream.

While the condensate is being evaporated, the "AUX" symbol will be displayed. **See Figure 20.**

Notice: The humidifier may not operate with every cycle.

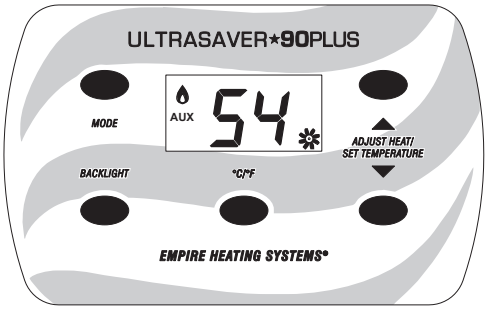


Figure 20

Troubleshooting

This wall furnace's controls include a troubleshooting feature which will display a code on the display panel should an error occur. See page 37 for a list of troubleshooting codes. Some codes will require the system to be reset.
To reset the wall furnace, press the mode selection button on the display panel repeatedly until the wall furnace cycles through the "OFF" setting once. If the error has been cleared, the wall furnace will operate normally. If the error is still present, consult a qualified service technician.

Remote Mode - Anti-tamper

To lock the display panel when operating the wall furnace in remote mode, press and hold the Mode, Up adjust and Down adjust buttons for ten seconds. The display panel will display "At". **See Figure 21.**

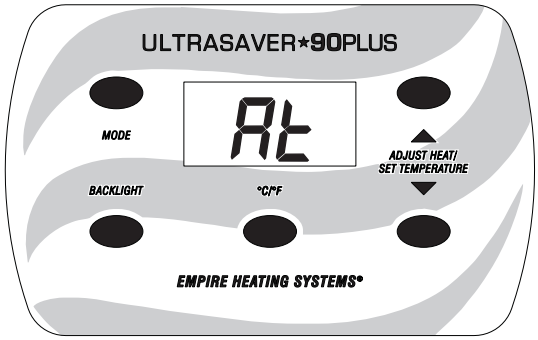


Figure 21

After the display panel darkens it will show the level and blower speed as normal during operation. When the wall furnace is in an OFF cycle, the display panel will show "At".

To deactivate the Anti-tamper mode, press and hold the Mode, Up adjustment and Down adjustment buttons for ten seconds. The display will return to the double dash "- -".

US★90

ULTRASAVER★90PLUS

INSTALLATION INSTRUCTIONS

EMPIRE COMFORT SYSTEMS

www.empirezoneheat.com

INTRODUCTION

FAQ - INSTALLATION CONSIDERATIONS

What tools are needed for installation?

Pipe Wrench
Adjustable Wrench
Drill
Tape Measure
10” x 5/16” Nut Driver
Thread Sealant
Level
2-1/2” Diameter Hole Saw for 2” pipe
2” Diameter Hole Saw for 1-1/2” pipe
1” Diameter Hole Saw
Non-corrosive Leak Check Solution

Where will the wall furnace be installed?

- **On the Floor** - Wall Furnace comes equipped from factory for this option. See Page 21.
- **Wall Mounted** - Wall mount shroud needed. See Page 15 for kit number.
  - Mount wall furnace at a height so that the controls can still be observed.
- **Interior Wall** - Maximum vent length is 50 feet.
- **Exterior Wall**
- **Locate Electrical Supply** - Extension cords may **NOT** be used.
- Wall Furnace Dimensions page 16.
- Clearances to Combustibles page 17.

What kind of venting application will be used?

- **Single Flue** - Wall Furnace comes equipped from factory for this option. A 2” or 1-1/2” pipe may be used. If a 1-1/2” pipe is used, it must be enlarged to a 2” pipe prior to exiting the wall into the shroud.
- **Direct Vent** - An “Air Pipe Kit” is required and is available for order. See page 15.

How will the venting be run?

- **Straight out the back** - Wall Furnace comes equipped from factory for this option. Standard Rear Shroud supplied. See page 26.
- **In Front of the wall** - Deep Shroud needed. Venting option may **NOT** be done in Wall Mount installations. See page 15 for kit number.
- Venting Guidelines pages 24 to 31.
- Maximum vent length is 50 feet.
- **Notice:** Clean all debris from the inside of the flue pipe prior to applying the glue and final assembly of the pipe. Since the condensate is designed to flow back to the appliance this debris will be carried to the condensate trap resulting in a clog. An “A2” error will appear on the display panel if this happens. The clog, and the work required to fix it, can be easily prevented by pulling a wet cloth through the pipe prior to applying the glue and final assembly.

How will the condensate be disposed?

- **To a drain** - Wall Furnace comes equipped from the factory to drain up to 3 feet away from the appliance.
  - An Extension Kit and External Condensate Pump kit may also be used. See page 15 for kit numbers.
- **Humidification** - Optional Heated Humidification Tray Kit available for order. See page 15 for kit number.
- Winterization information on page 39.

How will the wall furnace be operated?

- **Remote** - external Millivolt thermostat, wall switch or remote control. See page 15 for kits available from Empire Comfort Systems.
- **Manual** - use the display panel to control the heating level and turn the wall furnace on and off.
- **Local (Internal Thermostatic)** - Factory installed temperature probe on the wall furnace with a built-in thermostatic function to control the wall furnace’s operation.
  - If it is desired to use the temperature sensed in another part of the room, a wired temperature probe accessory kit is available. See page 15 for kit numbers.
- See Operation Instructions pages 7 to 12.
- ***Notice:*** Following a power outage, this wall furnace will not automatically resume operation when operated manually or with the internal thermostat. Once power is restored, the wall furnace will automatically power on in “Remote Mode” (--), and the original operation settings will need to be re-entered. Installing an optional Millivolt thermostat control allows the wall furnace to automatically resume operation under that thermostat’s control once power is restored. Ask your dealer for details.

INTRODUCTION

ACCESSORIES

ACCESSORIES		
VENTING		
Part Number	**Description**	**Typical Uses**
PVSA1	Air Pipe Kit	Converts wall furnace from single flue to direct-vent
PVSDV35A	DV35 Vent Transition Cap	Replaces DV35 Vent cap with a transition to PVC pipe for a 2” single flue.
SHROUDS		
Part Number	**Description**	**Typical Uses**
PVSDS1	Deep Rear Shroud	Allows venting to be run in front of the wall in on the floor installations
PVSWS1	Wall Mount Shroud	Allows installation of wall furnace off of the floor
CONDENSATE KITS		
Part Number	**Description**	**Typical Uses**
PVSHT1	Heated Humidification Tray	Evaporates condensate as humidity back into the room
PVSEP1	External Condensate Pump	Pumps condensate away from wall furnace instead of gravity drain
PVSCT10	Condensate Hose Extension	10 ft condensate drain extension
CONTROLS		
Part Number	**Description**	**Features**
PVSRT1	Temperature Sensor Relocation Kit	Room Temperature Sensor Extension
FRBTPL	Battery Remote Control, Programmable Thermostat, Backlit	Manual or Thermostatic Operation, Modulating, 10 Preset Weekly Programs

Notice: Following a power outage, this wall furnace will not automatically resume operation when operated manually or with the internal thermostat. Once power is restored, the wall furnace will automatically power on in “Remote Mode” (--), and the original operation settings will need to be re-entered. Installing an optional Millivolt thermostat control allows the wall furnace to automatically resume operation under that thermostat’s control once power is restored. Ask your dealer for details.

Important
All correspondence regarding repair and service should refer to complete Model Number, Serial Number and type of gas.

Removing the Front Panel

It may become necessary to remove the front panel of the appliance to remove dropped or fallen objects.

Remove the front panel by lifting up then pulling out. Replace the panel by reversing this step.

⚠ WARNING

FOR YOUR SAFETY, TURN OFF POWER TO APPLIANCE.

⚠ WARNING

Do not operate this appliance without the front panel.

INTRODUCTION

SPECIFICATIONS AND DIMENSIONS

SPECIFICATIONS		
Models	**PVS18(N,P)**	**PVS35(N,P)**
Maximum Input BTU/HR (KW/H)*	17,500 (5.13)	35,000 (10.26)
Minimum Input BTU/HR (KW/H)*	8,750 (2.56)	17,500 (5.13)
Height	27-7/8”	27-7/8”
Width	36-1/8”	36-1/8”
Depth with Shroud**	13	13
Gas Inlet (Pipe)	3/8” Pipe	3/8” Pipe
Electrical - The wall furnace comes equipped with a 5 foot (1.5m) 3 pronged cord exiting the rear left side of the wall furnace, for connection to an approved 115 VAC, 60 Hz, 15A (maximum) wall receptacle. The Minimum Circuit Amp (MCA) is 8A, 920W and with an accessory heated humidification tray installed, the MCA is 10A, 1150W.		
Vent Pipe: 1-1/2 or 2 inch diameter pipe, 50 feet maximum equivalent length. See pages 25 and 28 to 31. The vent termination elbow does not contribute to the overall vent length measurement.		

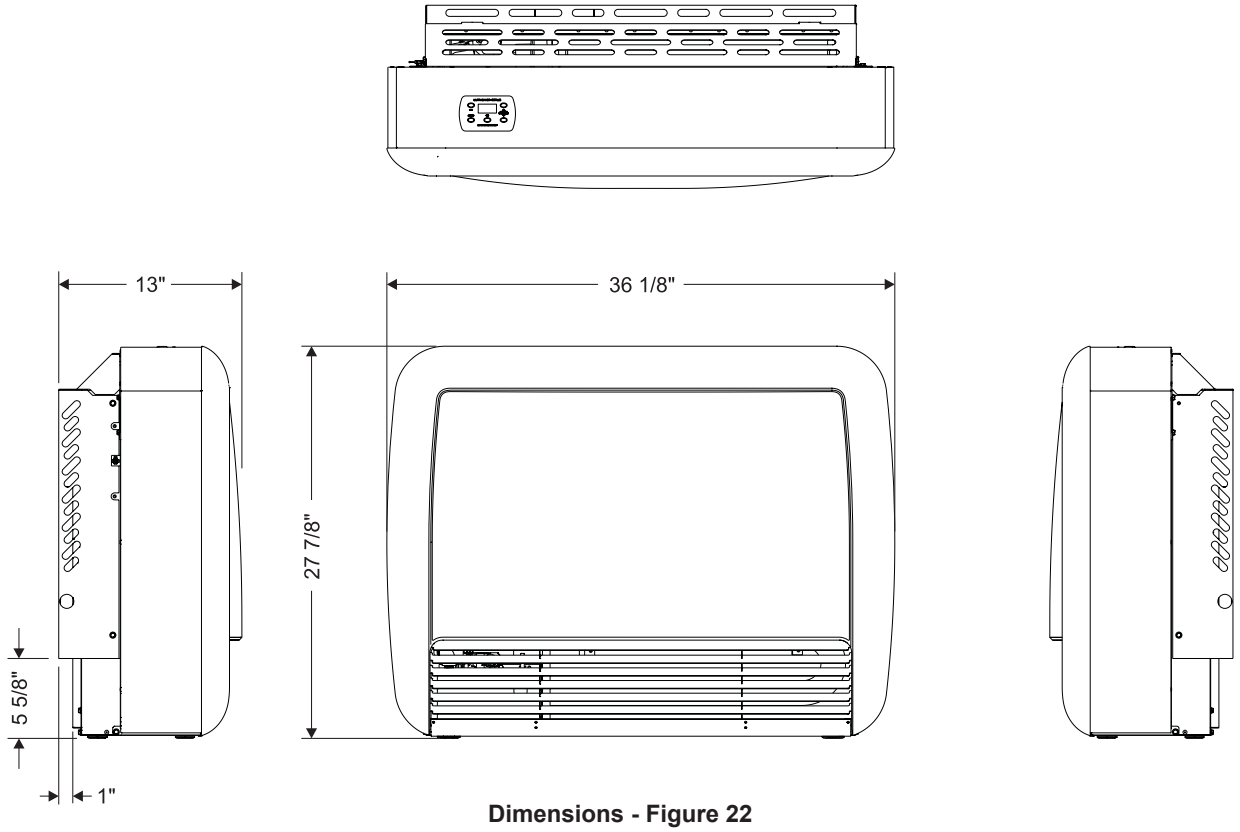
* Input ratings are based on sea level operation and may vary at different elevations. No orifice change is required. The appliance will de-rate automatically 1.5% per 1,000 feet.

** Add 3-3/8 inches for deep shroud.

All vent and combustion air pipes and fittings must be Schedule 40 PVC and meet the ANSI/ASTM Standard D1785. Cement must conform to ASTM Standard D2564. Empire-approved poly pipe with gasketed joints may also be used. Contact your Empire dealer for availability.

Listed for Category IV venting.

Approved Alternate Vent Systems	
Manufacturer	**Vent System**
Duravent	PolyPro
Centrotherm	InnoFlue



Dimensions - Figure 22

INTRODUCTION

CLEARANCES TO COMBUSTIBLES

Select a location with adequate accessibility clearances for servicing and proper installation. Locate the wall furnace within 5 feet of a 115 VAC wall receptacle to properly power the wall furnace. Do **NOT** use an extension cord.

When facing the front of the wall furnace the minimum clearances from casing to combustible construction are 12" (305mm) on top, 0" (0mm) on each side and 0" (0mm) from the floor, 0" (0mm) to rear wall, and 36" (914mm) in front of the wall furnace to walls or furniture. ***Notice:*** It is recommend to leave 8" (203mm) clearance on each side for servicing, furniture and other easily moved items may be placed to the sides (not the front) of the wall furnace. **See Figure 23.**

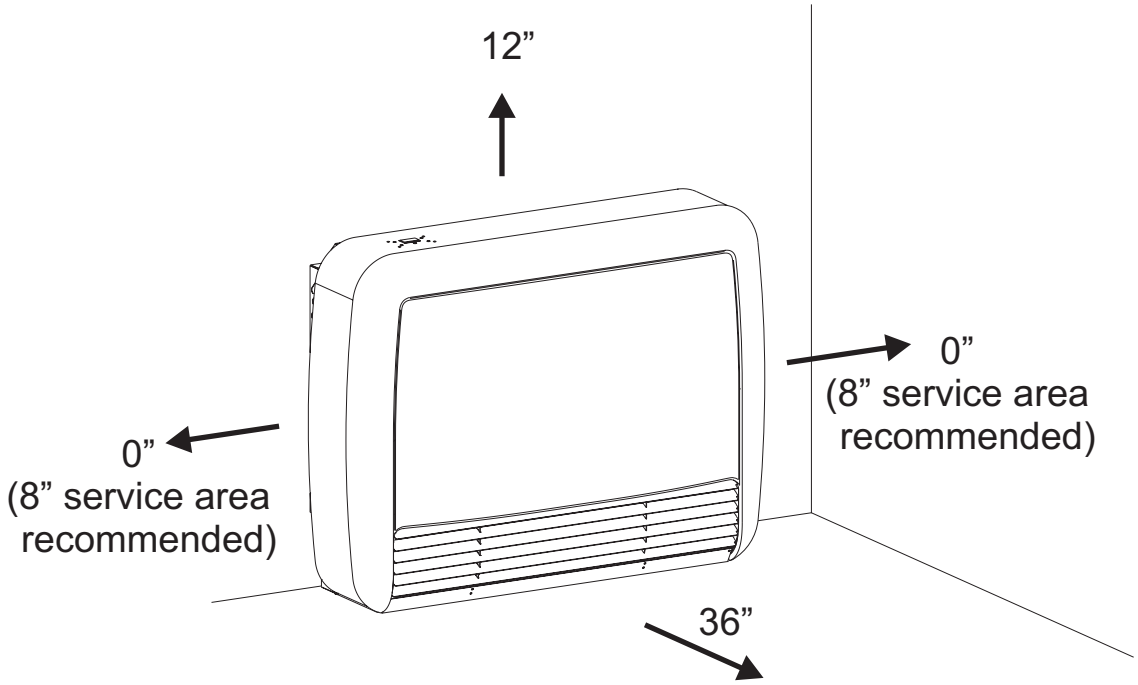


Figure 23

INTRODUCTION

WALL FURNACE DISPLAY

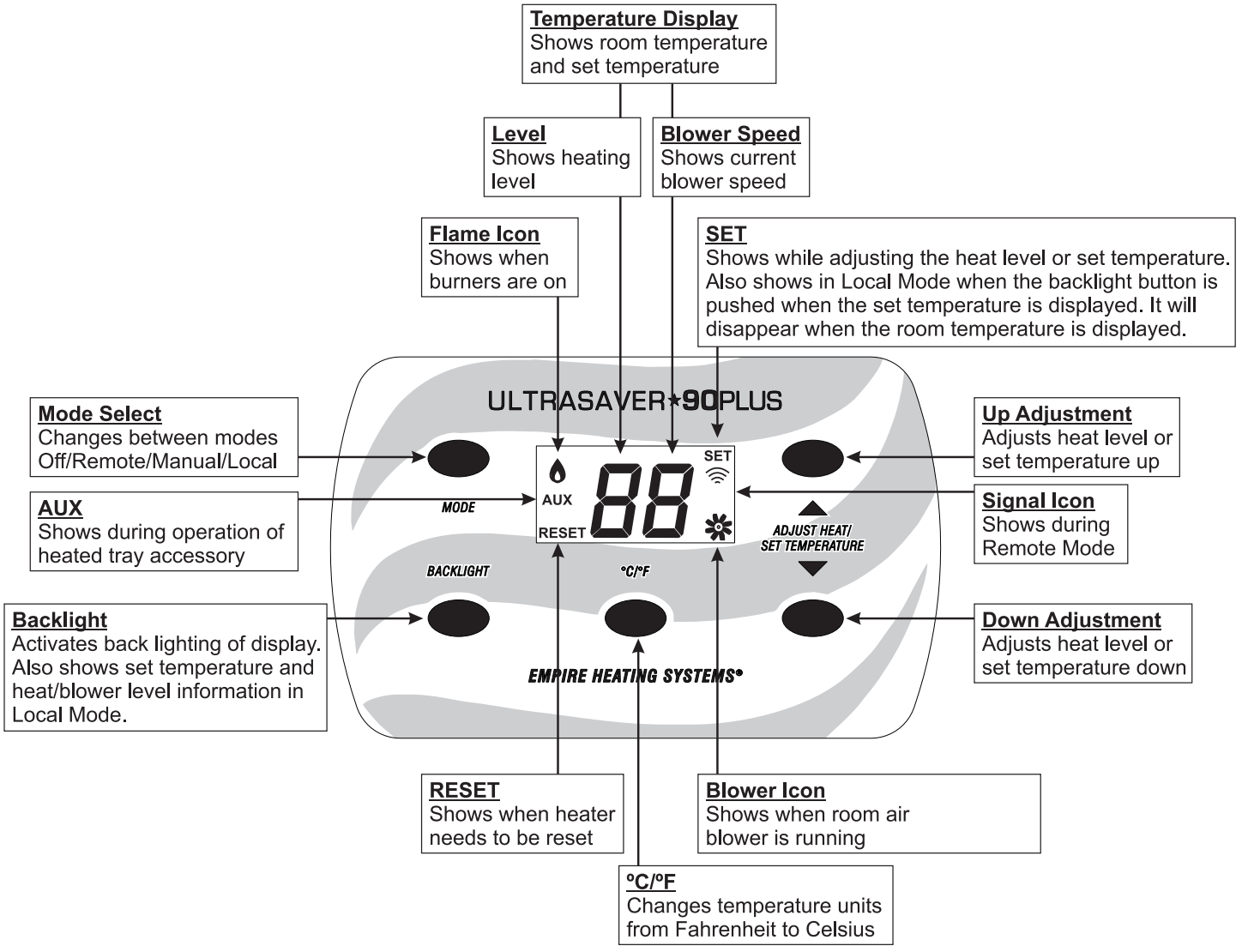

Temperature Display
Shows room temperature and set temperature
Level
Shows heating level
Blower Speed
Shows current blower speed
Flame Icon
Shows when burners are on
SET
Shows while adjusting the heat level or set temperature. Also shows in Local Mode when the backlight button is pushed when the set temperature is displayed. It will disappear when the room temperature is displayed.
Mode Select
Changes between modes Off/Remote/Manual/Local
AUX
Shows during operation of heated tray accessory
Backlight
Activates back lighting of display. Also shows set temperature and heat/blower level information in Local Mode.
ULTRASAVER★90PLUS
AUX
RESET
SET
MODE
BACKLIGHT
°C/°F
ADJUST HEAT/ SET TEMPERATURE
EMPIRE HEATING SYSTEMS•
Up Adjustment
Adjusts heat level or set temperature up
Signal Icon
Shows during Remote Mode
Down Adjustment
Adjusts heat level or set temperature down
RESET
Shows when heater needs to be reset
Blower Icon
Shows when room air blower is running
°C/°F
Changes temperature units from Fahrenheit to Celsius

Figure 24

WALL FURNACE COMPONENT ARRANGEMENT - FRONT

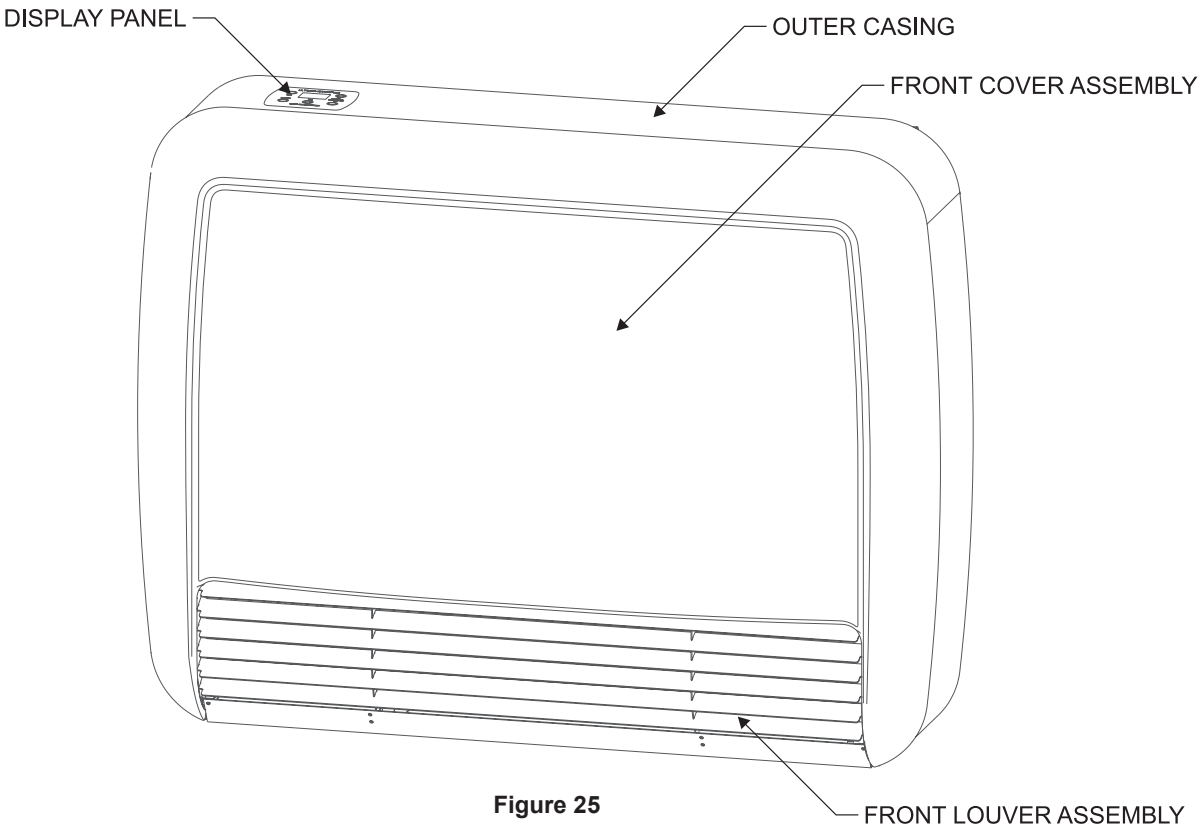


Figure 25

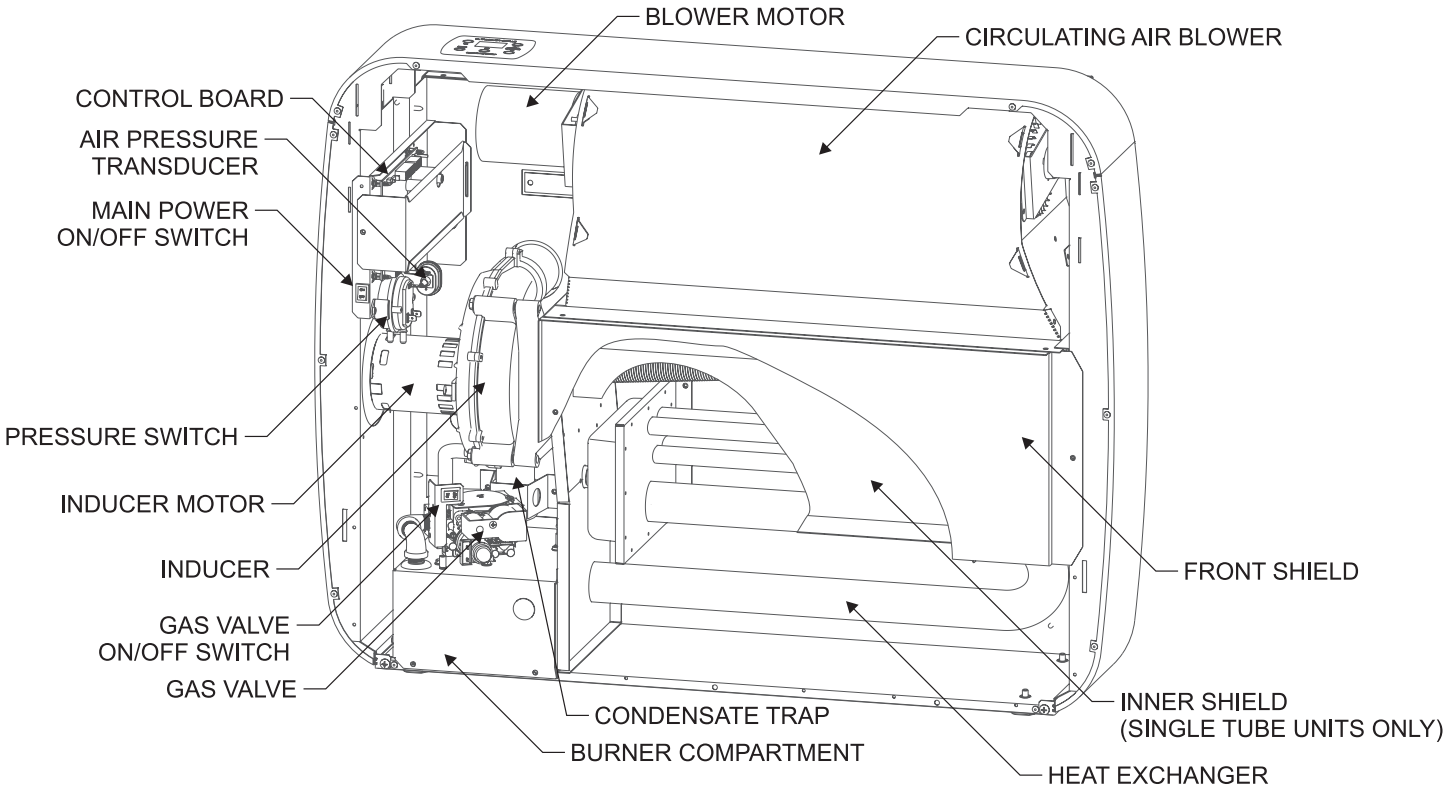


Figure 26

WALL FURNACE COMPONENT ARRANGEMENT - REAR

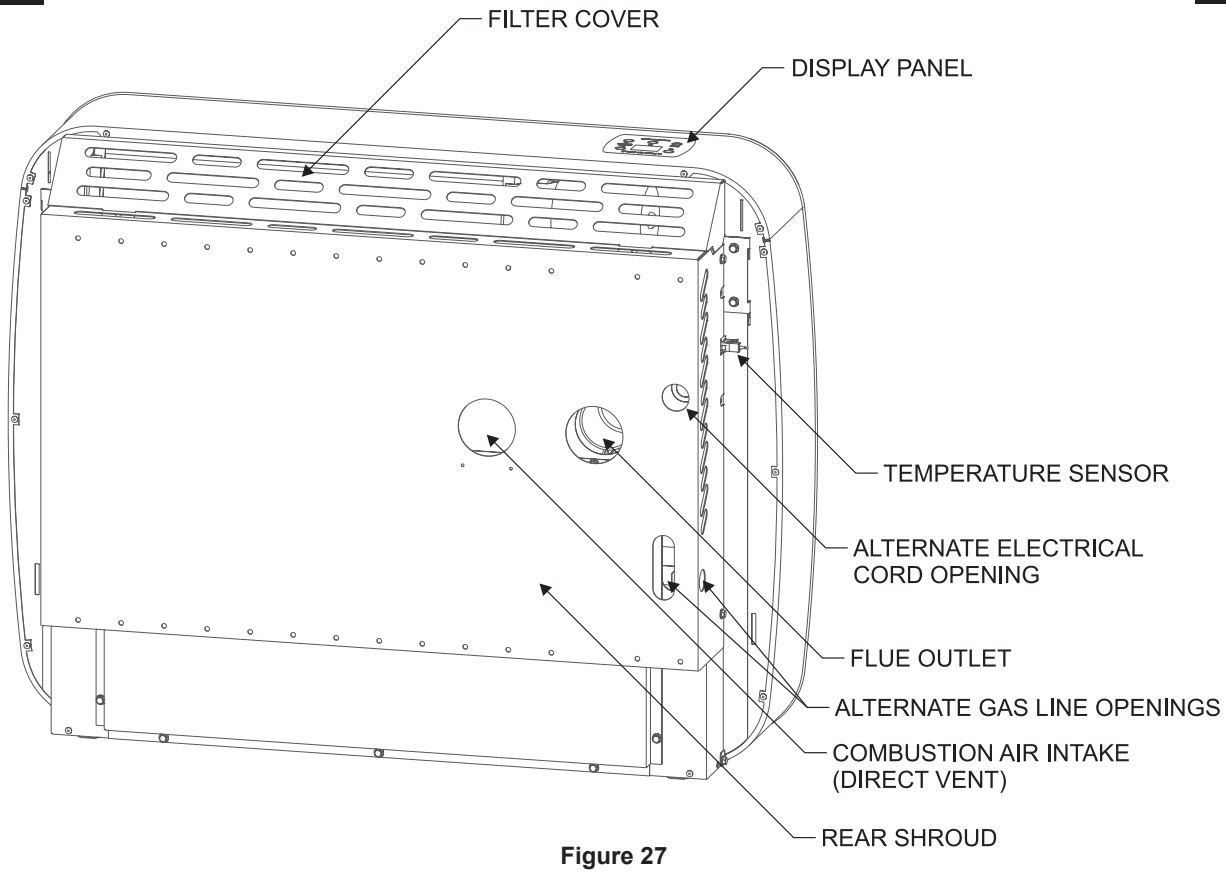


Figure 27

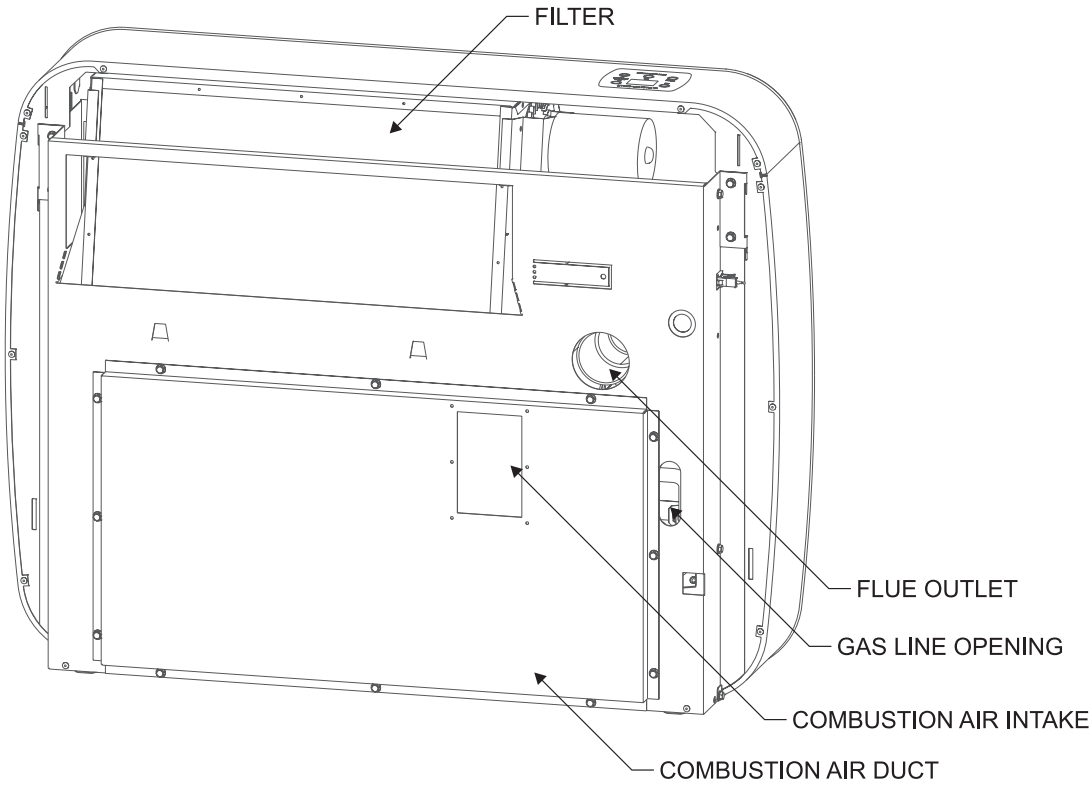


Figure 28

WALL FURNACE INSTALLATION

MOUNTING THE REAR SHROUD

Tools Needed

Pipe Wrench
Adjustable Wrench
Drill
Tape Measure
10” x 5/16” Nut Driver
Thread Sealant
Level
2-1/2” Diameter Hole Saw for 2” pipe
2” Diameter Hole Saw for 1-1/2” pipe
1” Diameter Hole Saw
Non-corrosive Leak Check Solution

Locating Wall Opening

Locate wall studs and move the wall furnace into position. The shroud has many holes and can be mounted into 16 or 24 on centers studs. A series of holes across the top of the rear shroud corresponds to the mounting holes to aide in aligning the mounting holes with the wall studs. When mounted directly on the floor, plastic anchors can be used. Ensure that the vent and gas line openings will be located between wall studs. Ensure the wall furnace is level, adjust legs on the bottom of the unit if necessary. **See Figure 29.**

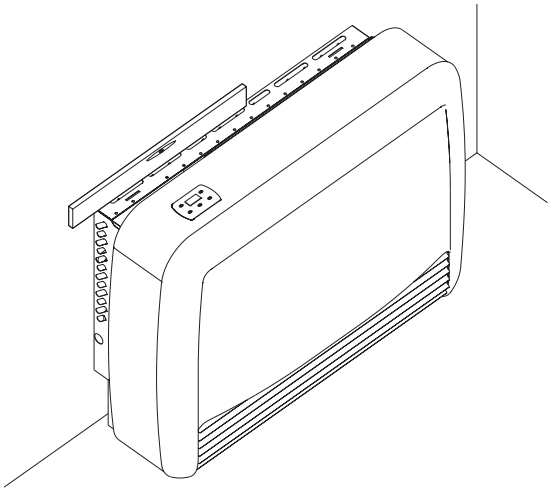


Figure 29

Use masking or painter’s tape to mark the location of the two top corners of the rear shroud against the wall. **See Figure 30.**

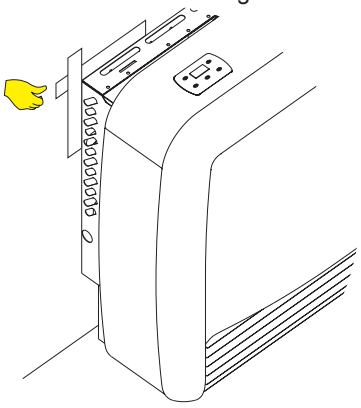


Figure 30

Move the wall furnace away from the wall and remove the rear shroud from the wall furnace. Remove four 10 x 1/2” hex-head screws and set aside. Determine if using a direct vent, single flue venting system. Place the rear shroud against the wall and mark the vent and gas openings. For single flue installations, mark only the left hole (as shown in Figure 31). For direct-vent installations, mark the left and right holes. **See Figure 31.** The wall opening required for intake and exhaust pipes is 2-3/8” in diameter within the circles made above. If the wall furnace is to be wall mounted above floor level, install per the instructions included with the wall shroud kit listed on page 15.

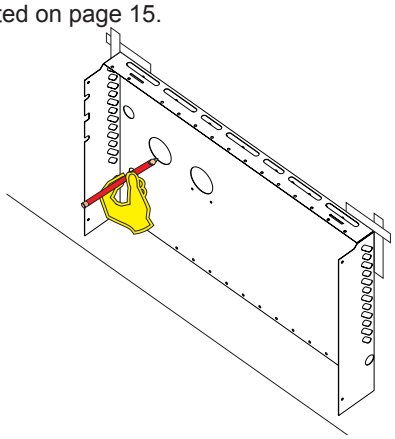


Figure 31

Installing Rear Shroud

After cutting the opening for the vent and gas line, place the shroud back into position against the wall and secure in place. The shroud should be mounted to the wall studs, if possible, using the four 10 x 1-1/2” hex-head screws provided. Two screws in top holes and two screws in bottom holes. **See Figure 32.**

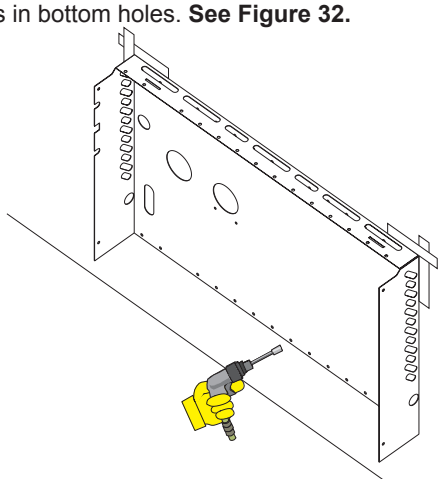


Figure 32

If installing the wall furnace on the floor, the rear shroud may be anchored solidly to the wall using the four plastic anchors (not provided) and four 10 x 1-1/2” (38mm) hex-head screws (provided).

⚠ WARNING

DO NOT use plastic anchors if installing the wall furnace off of the floor. The wall furnace must be secured to the studs; it may fall causing damage possible harm. Wall furnaces installed on the floor may be secured to the wall may use plastic anchors.

WALL FURNACE INSTALLATION

GAS SUPPLY

All gas piping must be installed in compliance with local codes and utility regulations. In the absence of local codes the installation must comply with NFCG NFPA 54/ANSI Z223.1.

Notice: Never use plastic pipe. Check to confirm whether your local codes allow copper tubing or galvanized.

Where permitted, flexible gas connectors must be certified to the following standards:

— ANS Z21.24 Appliance Connectors of Corrugated Metal Tubing and Fittings

— ANS Z21.45 Assembled Flexible Appliance Connectors of Other Than All-Metal Construction

The above connectors may be used if acceptable by the authority having jurisdiction. The state of Massachusetts requires that a flexible appliance connector cannot exceed three feet in length.

A drip leg should be installed in the vertical gas supply pipe run to the wall furnace.

Manual Shut-off Valve

Some local regulations require the installation of a manual shut-off valve and ground joint union external to the appliance. The shutoff should be accessible for service and/or emergency use. Consult the local utility or gas supplier for additional requirements regarding the placement of the manual shut off valve. Compounds used on threaded joints of gas piping shall be resistant to the action of liquefied petroleum gases.

Leak Testing

⚠ WARNING - FIRE OR EXPLOSION HAZARD

Never test for leaks with an open flame. Check all connections using a commercially available soap solution. A fire or explosion may result causing property damage, personal injury or loss of life. Failure to follow the safety warnings exactly could result in serious injury, death or property damage.

After gas piping to the wall furnace is complete, all connections must be tested for gas leaks. This includes pipe connections at the main gas valve, emergency shutoff valve and flexible gas connectors (if applicable). The soap and water solution can be applied on each joint or union using a small paintbrush. If any bubbling is observed, the connection is not sealed adequately and must be retightened. Repeat the tightening and soap check process until the bubbling ceases.

Notice: **When pressure testing the gas supply lines at pressures greater than ½ psig (14 in. w.c.), the gas supply piping system must be disconnected from the appliance to prevent damage to the gas control valve. If the test pressure is less than or equal to ½ psig (14 in. w.c.), close the manual shut-off valve.**

Pressure Testing of the Gas Supply System

1. To check the inlet pressure to the gas valve, a 1/8 inch N.P.T. plugged tapping, accessible for test gauge connection, must be placed immediately upstream of the gas supply connection to the appliance.
2. The appliance and its individual shutoff valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psig.
3. The appliance must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 psig.

Recommended Gas Pipe Diameter

Pipe Length	Schedule 40 Pipe Inside Diameter		Tubing, Type L Outside Diameter	
	Nat.	L.P.	Nat.	L.P.
0-10 feet 0-3 meters	1/2” 12.7 mm	3/8” 9.5mm	1/2” 12.7 mm	3/8” 9.5 mm
10-40 feet 4-12 meters	1/2” 12.7 mm	1/2” 12.7mm	5/8” 15.9 mm	1/2” 12.7 mm
40-100 feet 13-30 meters	1/2” 12.7 mm	1/2” 12.7mm	3/4” 19 mm	1/2” 12.7 mm
100-150 feet 31-46 meters	3/4” 19 mm	1/2” 12.7 mm	7/8” 22.2 mm	3/4” 19 mm

Table 1

Gas Supply Pressure	NAT Gas	L.P.
Normal	7.0” w.c.	10.0” w.c.
Minimum	3.5” w.c.	8.0” w.c.
Maximum	10.5” w.c.	13.0” w.c.
Manifold Pressure Hi (Level 5)	3.5” w.c.	7.0” w.c.
Manifold Pressure Low (Level 1)	0.9” w.c.	1.9” w.c.

Table 2

Gas Connection Installation

⚠ CAUTION

Under no circumstances should the gas supply line to the appliance be installed in a way that would prevent the appliance from being serviced or inspected.

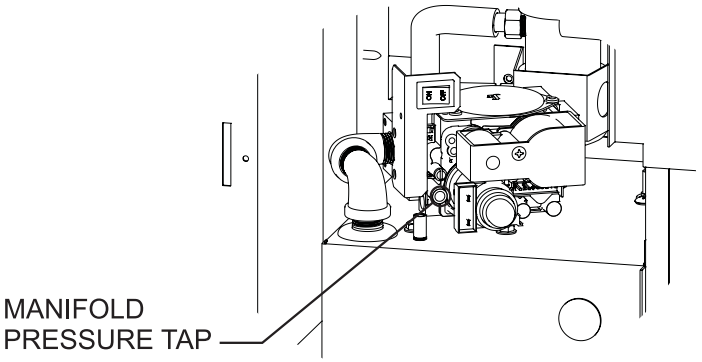


Figure 33

WALL FURNACE INSTALLATION

GAS SUPPLY

Gas Supply Line to Wall furnace

1. Pull the factory installed flexible gas line through the hole in the back panel. **See Figure 34.**
2. Connect the gas supply line to flexible gas hose. Ensure that flexible gas hose is not kinked after fitting gas supply line. Any excess flexible line can be pushed back into the wall furnace. **See Figure 34.**

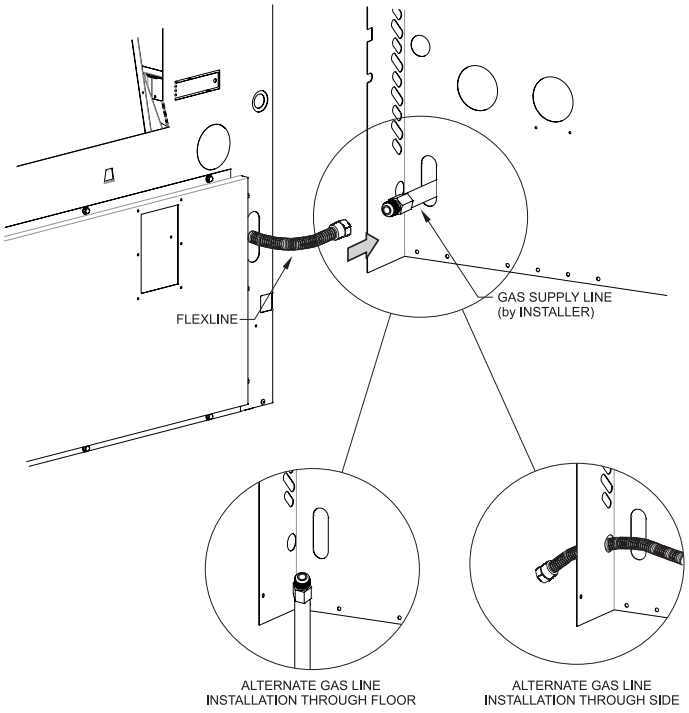


Figure 34

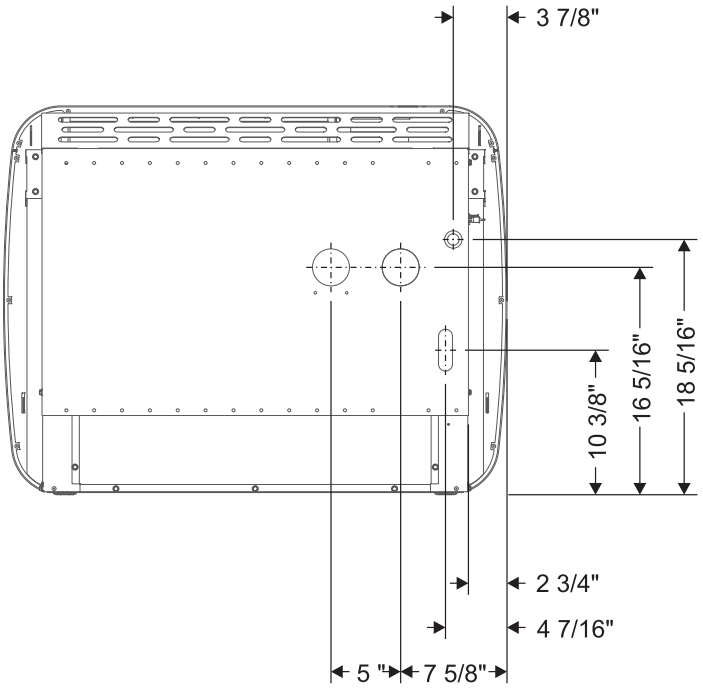
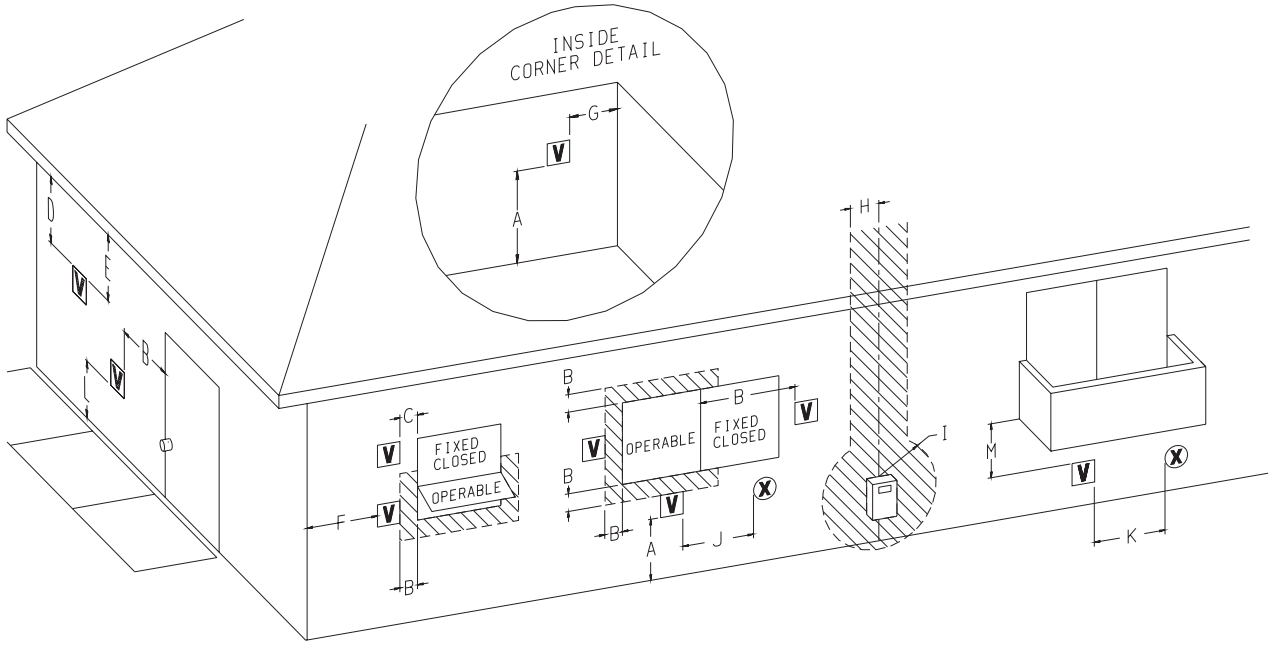


Figure 35

WALL FURNACE INSTALLATION

VENT CLEARANCES



V VENT TERMINAL X AIR SUPPLY INLET AREA WHERE TERMINAL IS NOT PERMITTED

		US Installation [1]
A =	Clearance above any grade, veranda, porch or balcony	12 in (30 cm)
B =	Clearance to window or door that may be opened	6 in (15 cm) for appliances ≤ 10,000 Btu/h (3 kW), 9 in (23 cm) for appliances > 10,000 Btu/h (3 kW) and ≤ 50,000 Btu/h (15 kW), 12 in (30 cm) for appliances > 50,000 Btu/h (15 kW)
C =	Clearance to permanently closed windows	*
D =	Vertical clearance to ventilated soffit located above the terminal within a horizontal distance of 2 ft (61 mm) from the center line of the terminal	*
E =	Clearance to unventilated soffit	*
F =	Clearance of outside corner	*
G =	Clearance of inside corner	*
H =	Clearance to each side of center line extended above meter/regulator assembly	* 3 feet
I =	Clearance to service regulator vent outlet	3 feet
J =	Clearance to non-mechanical air supply inlet to building or the combustion air inlet to any other appliance	6 in (15 cm) for appliances ≤ 10,000 Btu/h (3 kW), 9 in (23 cm) for appliances > 10,000 Btu/h (3 kW) and ≤ 50,000 Btu/h (15 kW), 12 in (30 cm) for appliances > 50,000 Btu/h (15 kW)
K =	Clearance to a mechanical air supply inlet	3 ft (91 cm) above if within 10 ft (3 m) horizontally
L =	Clearance above paved sidewalk or paved driveway located on public property †	7 feet
M =	Clearance under veranda, porch deck, or balcony ¥	12 inches
1	In accordance with the current ANSI Z223.1/NFPA 54, National Fuel Gas Code	
†	A vent shall not terminate directly above a sidewalk or paved driveway that is located between two single family dwellings and serves both dwellings.	
¥	Permitted only if veranda, porch, deck or balcony is fully open on a minimum of two sides beneath the floor.	
*	For clearances not specified in ANSI Z223.1/NFPA 54 or CSA B149.1, refer to local codes.	

Figure 36

WALL FURNACE INSTALLATION

VENTING REQUIREMENTS

⚠ WARNING

This appliance must not be vented with any other appliances, even if that appliance is of the condensing type. Common venting can result in severe corrosion of other appliances or their venting and can allow combustion gases to escape through such appliances or vents. Do not vent the wall furnace into a fireplace chimney or building chase. The flue exhaust pipe must be vented outside.

⚠ WARNING

Upon completion of the installation, carefully inspect the entire flue system to ensure it is properly sealed. DO NOT use any vent material other than what is specified in this manual. Leaks in the flue system can result in serious personal injury or death due to exposure of flue products, including carbon monoxide.

The UltraSaver is classified as a "Category IV" appliance, which requires special venting materials and installation procedures. Installations can be Conventional (one-pipe) and Direct Vent (two-pipe). Venting must be completed with 1-1/2 or 2 inch diameter pipe. In selecting a location for installation, it is necessary to provide adequate clearances for servicing and proper installation.

All vent and combustion air pipes and fittings must be Schedule 40 PVC and meet the ANSI/ASTM Standard D1785. Cement must conform to ASTM Standard D2564. Empire approved poly pipe with gasketed joints may also be used. Contact your Empire dealer for availability. The use of vent tubes not approved by the manufacturer may result in unsatisfactory performance.

The flue exhaust pipe and inlet air pipe should be located between wall studs. If an existing unit is being replaced, the flue exhaust and inlet pipes may be run continuously through the existing flue pipe or wall opening. See page 15 for special termination kits. The required opening for venting is 1-7/8 inch in diameter for 1-1/2 inch pipe, and 2-3/8 inch diameter for two inch pipe.

The flue outlet must be at least twelve inches from any opening which flue gases could enter the building. **See Figure 36.** The flue outlet must be a minimum distance of three feet from any pressure regulator.

The bottom of the exhaust vent terminal and the air intake must be located at least twelve inches above grade or the maximum snow level.

The pipe must be supported every three feet on horizontal runs and every 10 feet on vertical runs. All horizontal runs must be pitched ¼ inch per foot towards the wall furnace.

Notice: If the vent run dips or sags, condensation may become trapped and cause the wall furnace to not operate properly.

The minimum vent length protruding from outside the wall is ten inches. For two-pipe installation, a minimum distance of five inches from pipe centers and maximum distance of 24 inches must be maintained between the pipes. See Page 30.

Maximum Vent Length is 50 feet. Each 90° elbow used in the vent system will be the equivalent to three feet, and each 45° elbow is equivalent to 1.5 feet, which should be added to the overall vent length. The vent terminal does not contribute to the overall vent length measurement.

Notice: **If vent length requirements are not followed, the wall furnace will not operate properly.**

Vent Freezing Protection

When the vent pipe is exposed to temperatures below freezing (i.e. when it passes through unheated spaces, chimneys, etc.) The pipe must be insulated with 1/2 inch thick sponge rubber insulation, Armaflex-type insulation or equivalent (Ameraflex is a registered trademark of Amaracell). Insulating pipe is important to avoid condensate icing. **See Figure 37.**

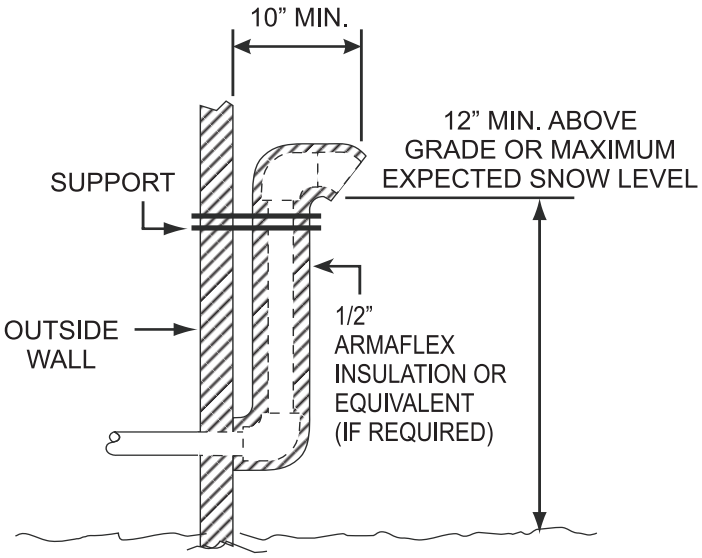

10" MIN.
12" MIN. ABOVE GRADE OR MAXIMUM EXPECTED SNOW LEVEL
SUPPORT
OUTSIDE WALL
1/2" ARMAFLEX INSULATION OR EQUIVALENT (IF REQUIRED)

Figure 37

The minimum flue length off the wall is 10".

The bottom of the exhaust vent terminal and the air intake shall be located at least 12 inches above grade or expected snow level.

⚠ WARNING

The nearest point of the vent cap should be a minimum horizontal distant of three feet (0.91m) from any pressure regulator. In case of regulator malfunction, the three feet (0.91m) distance will reduce the chance of gas entering the vent cap.

Notice: Clean all debris from the inside of the flue pipe prior to applying the glue and final assembly of the pipe. Since the condensate is designed to flow back to the appliance this debris will be carried to the condensate trap resulting in a clog. An "A2" error will appear on the display panel if this happens. The clog, and the work required to fix it, can be easily prevented by pulling a wet cloth through the pipe prior to applying the glue and final assembly.

Install Vent Termination and Piping

The UltraSaver may be installed with up to 50’ equivalent length venting.

***Notice*: For each 45° elbow installed in the run, the length of the run MUST be reduced by 1.5 feet (45 cm). Reduce the length of the run three feet (91.4 cm) for every 90° elbow. The vent terminal elbow does not contribute to the overall vent length measurement.**

See pages 28 through 31 for vent termination and vent run examples and requirements.

This unit is vented directly out the back using 1-1/2” or 2” PVC pipe. See Figure 36 for exterior vent hole location.

If 1-1/2” pipe is used, it must be enlarged to 2” pipe prior to exiting the wall into the shroud.

If venting out the back through the wall is not possible (such as in a basement) the vent pipes may be run in front of the wall (left, right, or up) inside of the room using an optional deep shroud. See page 15.

When venting through the wall, be sure to leave 2-3/8” (51mm) of flue pipe extending through the rear shroud into the room for connection to the inducer. **See Figure 38.**

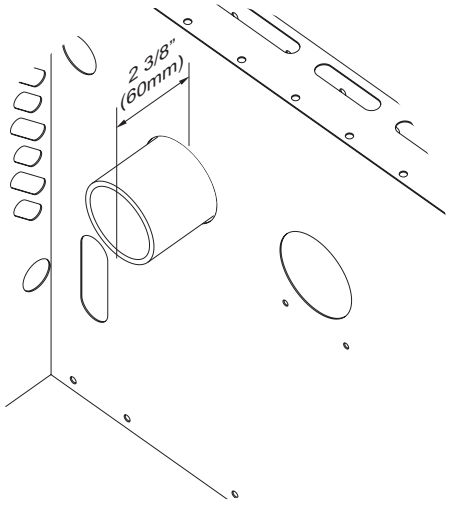


Figure 38

To prevent flue pipe from pushing back into the wall, place a hose clamp on the pipe against the wall and tighten. **See Figure 39.**

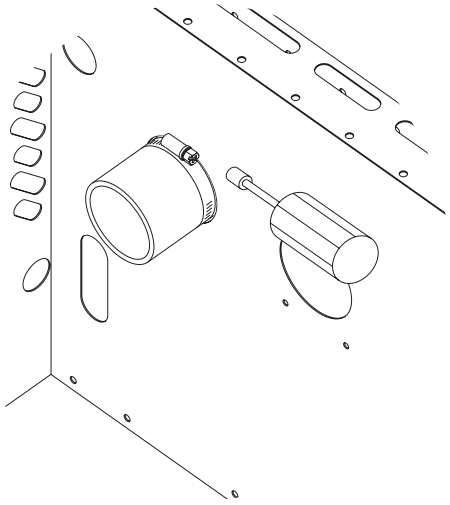


Figure 39

For direct-vent installations, the inlet air pipe will only extend 1/4” through the wall into the rear shroud. The inlet pipe will butt against the stopping flange provided with the air pipe kit. **See Figure 40.**

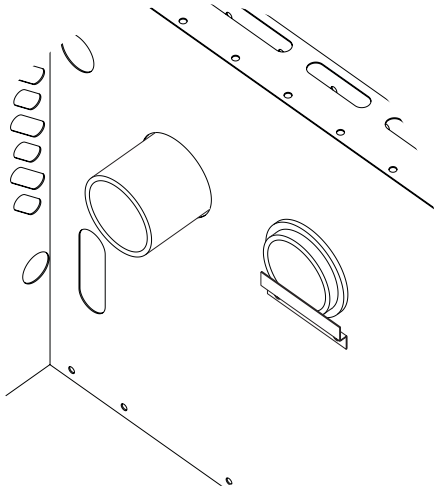


Figure 40

WALL FURNACE INSTALLATION

VENTING

Due to the high efficiency of the Ultra Saver, condensate will form in the heat exchanger and flue pipe. A condensate trap and drain tube are provided to dispose of the condensate to a nearby floor drain. An optional humidification tray is also available to evaporate the condensate back into the room as humidity instead of draining it away from the wall furnace. See page 15.

If draining the condensate away from the wall furnace, route the condensate drain tube provided in the instruction envelope to the elbow on the tube sticking through the back of the wall furnace to a nearby drain. **See Figure 41.** The elbow may be rotated to direct the hose to either side or straight down. Eliminate all sags or dips as they may prevent drainage. An optional drain tube extension kit and optional condensate pump kit accessory are available. See page 15.

Notice: Due to the mildly acidic nature of wall furnace condensation, check with local authorities to determine if a ph neutralizing process may be required.

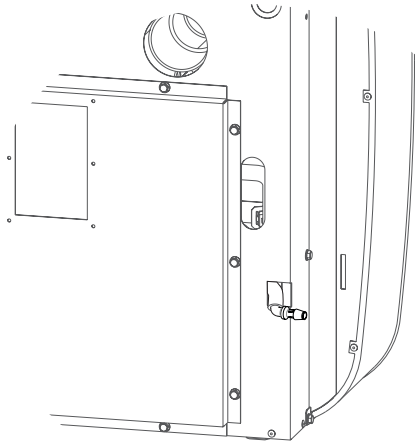


Figure 41

Carefully push the wall furnace back into position against the rear shroud and connect the flue pipe to the inducer.

Attach the wall furnace to the rear shroud by using four 10 x 1/2” (13mm) hex-head screws previously removed (see page 21). **See Figure 42.** Do not tighten the screws.

Reinstall the filter door by inserting the filter door tabs into the two receiving slots on top of the rear shroud. Close the filter door, then adjust the wall furnace positions to minimize the gap between the wall furnace casing and the filter door. Tighten the four wall shroud screws to secure the wall furnace in place.

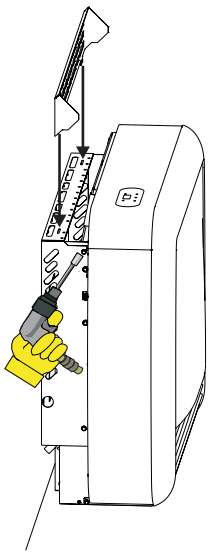


Figure 42

Notice: For floor mounted wall furnaces, ensure the adjustable legs are all on the floor.

To complete inside installation open the filter door and, tighten the inducer hose clamp with a 10-inch 5/16” nut driver. **See Figure 43.**

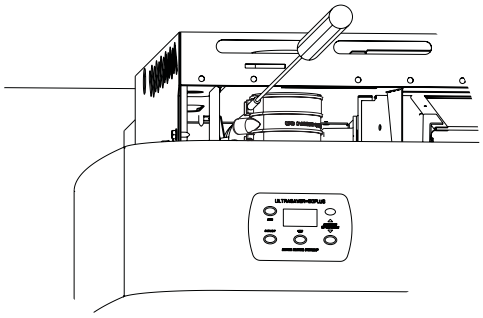


Figure 43

VENT EXAMPLES FOR SINGLE FLUE

Max Vent Run - 50 ft. Equivalent

When installing a horizontal vent termination, the minimum vent length protruding from the outside wall is 10 inches (304mm). **See Figure 44.**

For venting cap, exhaust with 45° elbow.

Notice: Horizontal discharge 45° elbow must be pointed downward. **See Figure 44.**

Notice: All horizontal runs require a 1/4" per foot rise to run condensation back to the wall furnace.

Notice: **For each 45° elbow installed, the length of the run MUST be reduced by 1.5 feet (45 cm). Reduce the length of the run three feet (91.4 cm) for every 90° elbow. The vent terminal elbow does not contribute to the overall vent length measurement.**

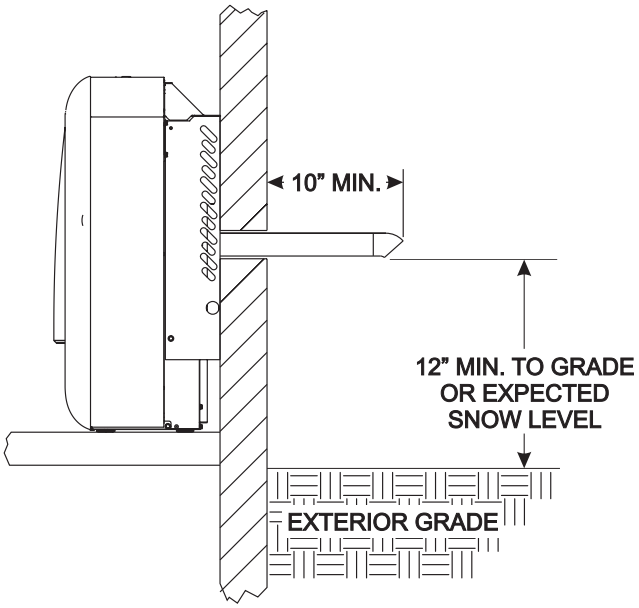


Figure 44
Single Flue - Straight Out Back

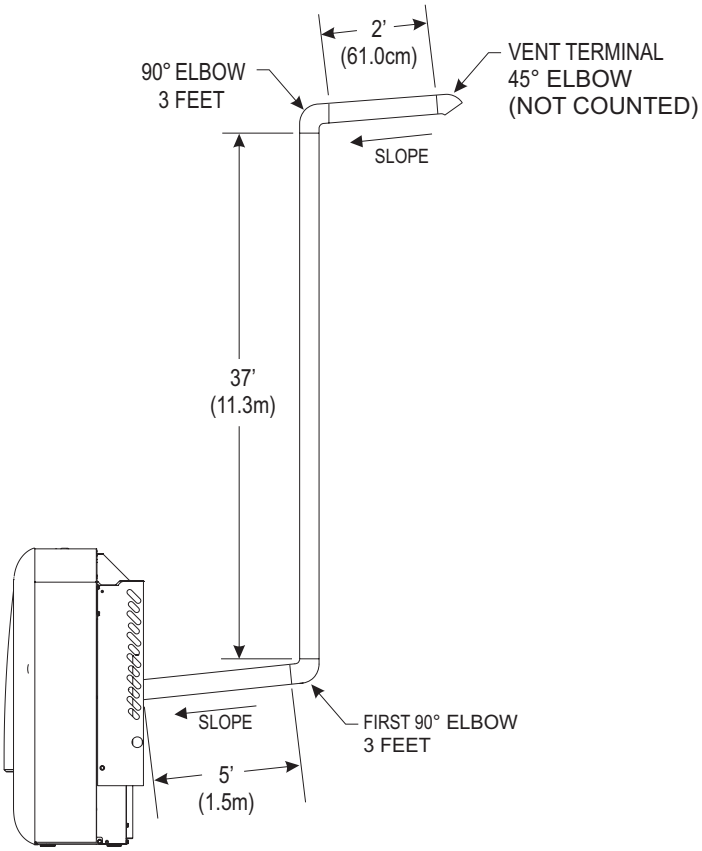


Figure 45
Example Calculation Max Vent Run 50 feet

Figure 45 displays a single flue (one-pipe) installation. The first 90° elbow must be considered into the total vent length. The equivalent length of the second 90° elbow also needs to be added to the total length, but the third elbow does not since it is the flue terminal. The total horizontal vent length of the flue system is seven feet, and the total vertical length is 37 feet. The two 90° elbows are equivalent to six feet, bringing the total to 50 feet.

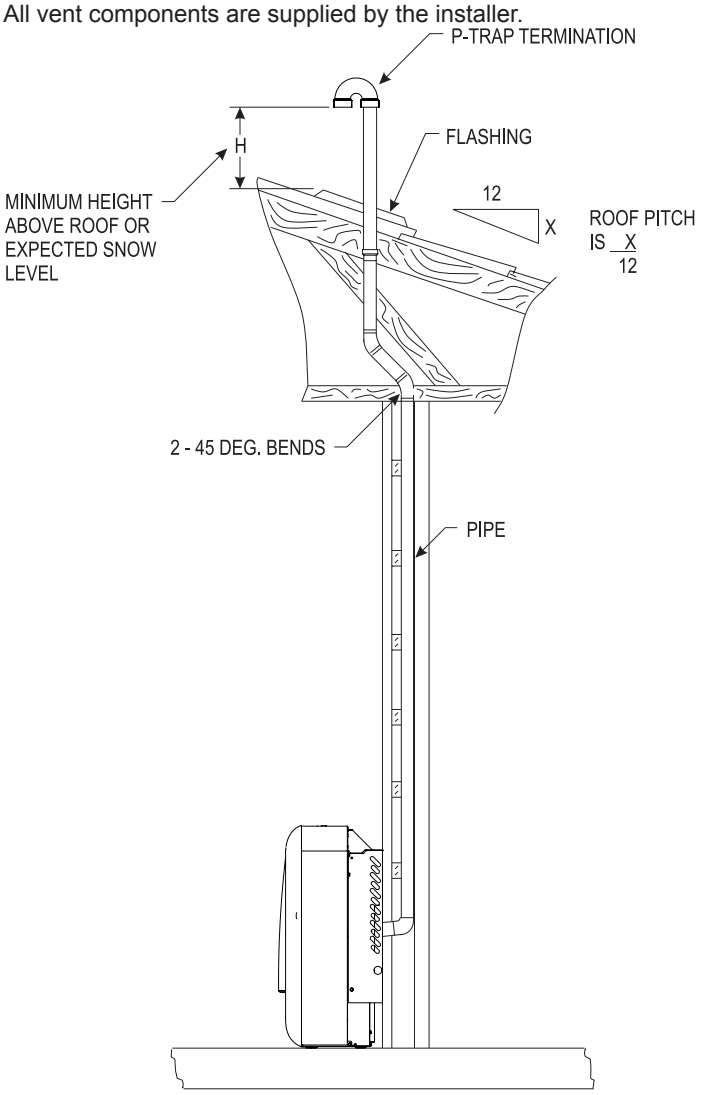
Table 3 - Equivalent Vent Length Example (See Figure 45)														
EVL = Equivalent Vent Length														
EVL must be greater than or equal to 1' **and** less than or equal to 50'														
EVL	=	5' straight pipe	+	90º elbow	+	37' straight pipe	+	90º elbow	+	2' straight pipe	=	50'		
EVL	=	5' (straight pipe)	+	3' (90º elbow)	+	37' (straight pipe)	+	3' (45º elbow)	+	2' (straight pipe)	=	50'		

WALL FURNACE INSTALLATION

VENT EXAMPLES FOR SINGLE FLUE

Determining Minimum Vent Height Above the Roof

All vent components are supplied by the installer.



Determining Minimum Vent Height Above the Roof

ROOF PITCH	H (Min.)
Flat to 6/12	12” (305 mm)
6/12 to 7/12	15” (381 mm)
Over 7/12 to 8/12	18” (457 mm)
Over 8/12 to 16/12	24” (610 mm)
Over 16/12 to 21/12	36” (914 mm)

Figure 46
Single Flue - Vertical Vent Run

⚠ WARNING

Major U.S. building codes specify minimum chimney and/or vent height above the rooftop. These minimum heights are necessary in the interest of safety. These specifications are summarized in Figure 46.

WALL FURNACE INSTALLATION

DIRECT VENT EXAMPLES

The PVSA1 Air Pipe Kit is required for installation of the wall furnace in a direct-vent configuration. See Page 15.

Max Vent Run - 50 ft. Equivalent

When installing a horizontal vent termination, the minimum vent length protruding from the outside wall is 10 inches (304mm) for exhaust and four inches for intake air. **See Figure 47.**

For venting, cap exhaust with 45° elbow and intake air with 90º elbow both pointed downward.

Notice: All horizontal runs require a 1/4" per foot rise to run condensation back to the wall furnace.

Notice: **For each 45° elbow installed, reduce the length of the run MUST be reduced by 1.5 feet (45 cm). Reduce the length of the run three feet (91.4 cm) for every 90° elbow. The vent terminal elbow does not contribute to the overall vent length measurement.**

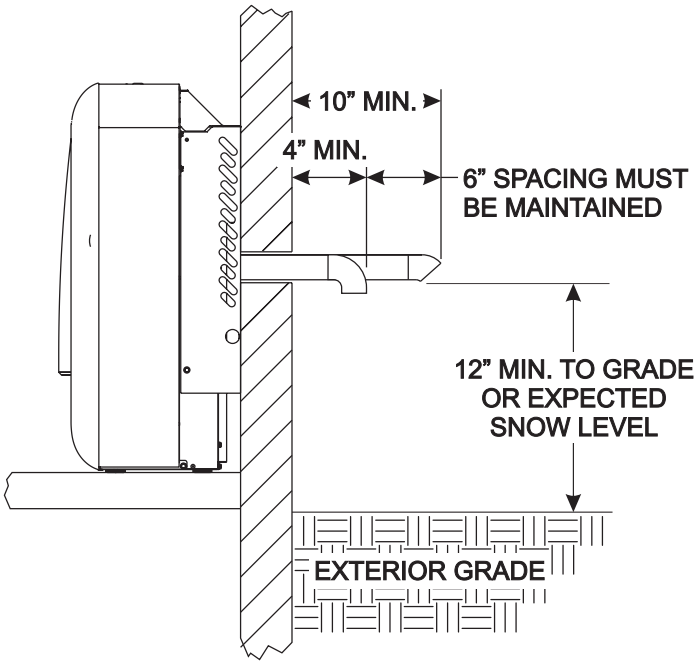


Figure 47

Optional Deep shroud kit shown for vent run in front of wall. See page 15.

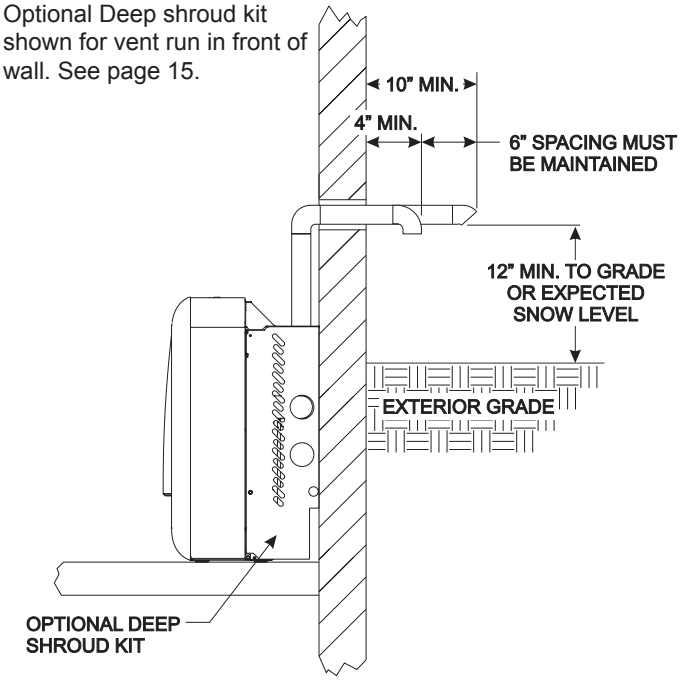


Figure 48

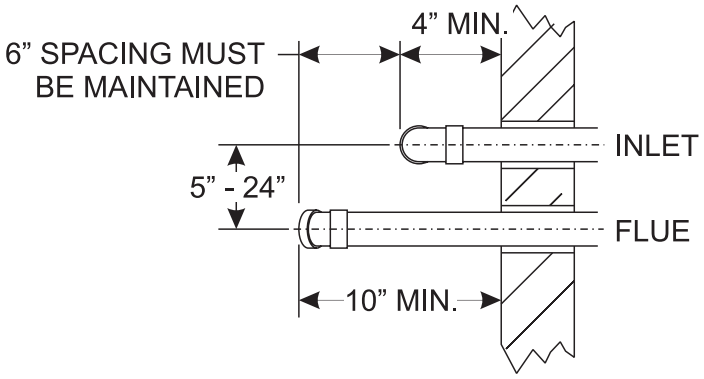


Figure 49

The measurement for center to center of the pipes can be 5" to 24" maximum.

DIRECT VENT EXAMPLES

Notice: **The vent terminal elbow does not contribute to the overall vent length measurement. For each 45° elbow installed in the run, the length of the run MUST be reduced by 1.5 feet (45 cm). Reduce the length of the run three feet (91.4 cm) for every 90° elbow.**

All vent components are supplied by the installer.

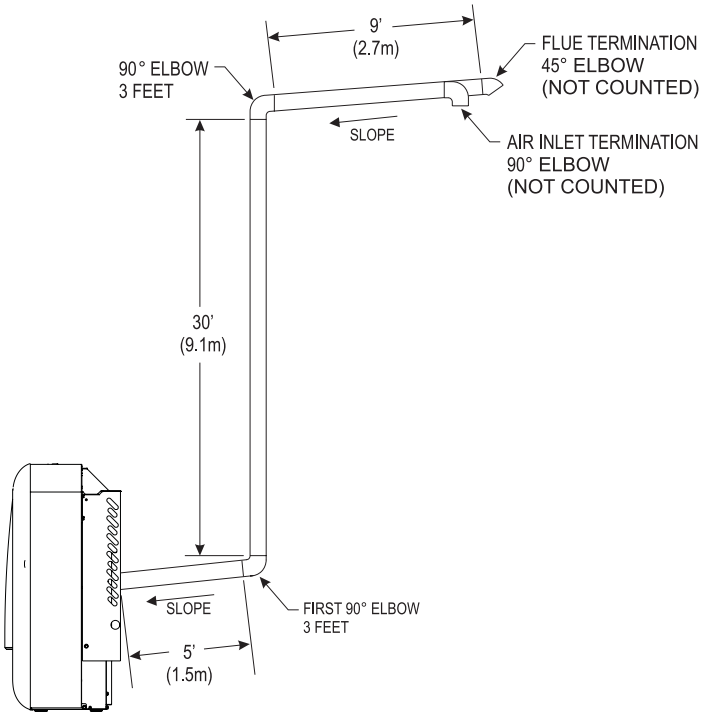
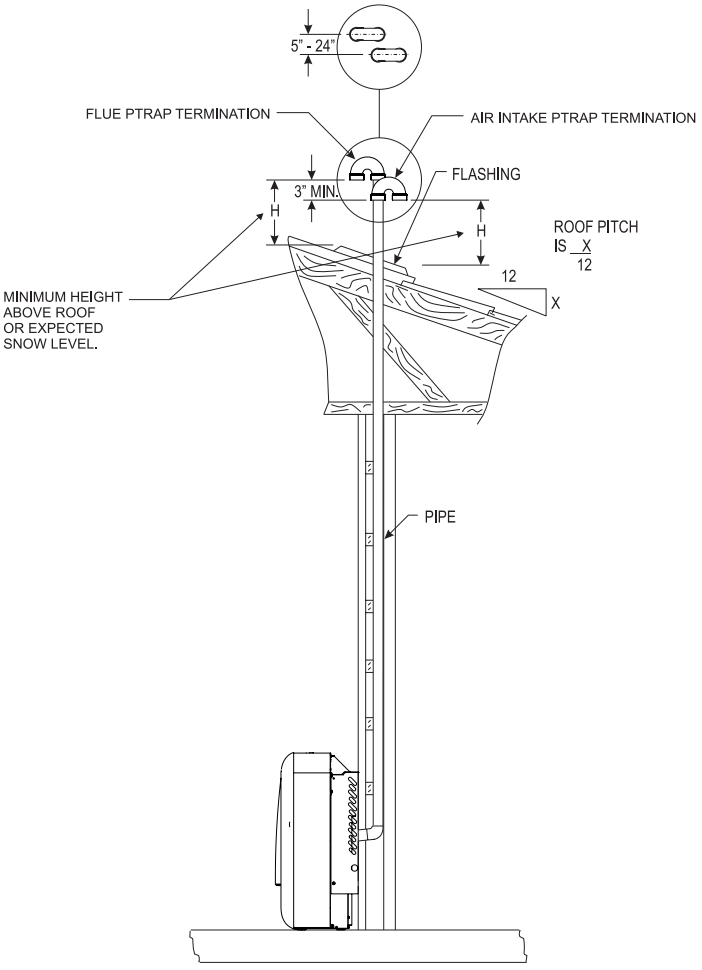


Figure 50
Calculation example of vent run maximum 50 feet

Figure 50 displays a two-pipe vertical installation. The first 90° elbow must be added to the total vent length. The equivalent length of the second 90° elbow also needs to be added to the total length. The equivalent length of the third elbow does not need to be added since it is the termination. The total horizontal vent length of the flue system is 14 feet, and the total vertical length is 30 feet. The two 90° elbows are equivalent to six feet, bringing the total to 50 feet.

Notice: For vertical termination, the exhaust must be a minimum of three inches above the inlet air pipe. The inlet must be at least twelve inches from the roof line or the maximum expected snow level as indicated in Figure 51.



ROOF PITCH	H (Min.)
Flat to 6/12	12” (305 mm)
6/12 to 7/12	15” (381 mm)
Over 7/12 to 8/12	18” (457 mm)
Over 8/12 to 16/12	24” (610 mm)
Over 16/12 to 21/12	36” (914 mm)

Determining Minimum Vent Height Above the Roof
Figure 51

⚠ WARNING

Major U.S. building codes specify minimum chimney and/or vent height above the rooftop. These minimum heights are necessary in the interest of safety. These specifications are summarized in Figure 51.

WALL FURNACE INSTALLATION

LIGHTING INSTRUCTIONS

FOR YOUR SAFETY READ BEFORE LIGHTING

WARNING: IF YOU DO NOT FOLLOW THESE INSTRUCTIONS EXACTLY, A FIRE OR EXPLOSION MAY RESULT CAUSING PROPERTY DAMAGE, PERSONAL INJURY, OR LOSS OF LIFE.

A. BEFORE LIGHTING smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.

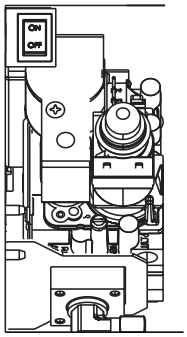
WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance
- Do not touch any electrical switch
- Do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone.
- Follow the gas supplier's instructions.
- If you can not reach your gas supplier, call the fire department.

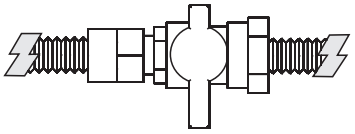
B. Use only the wall switch or remote control switch to turn the gas control on/off. Any attempted repairs or adjustments should be performed by a qualified service technician. Applying force or attempted repair may result in a fire or explosion.

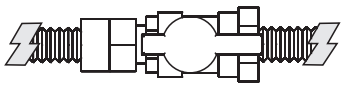
C. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

LIGHTING INSTRUCTIONS



1. STOP! Read the safety information above.
2. Turn off the remote thermostat if used.
3. Open bottom louver assembly, or open the service access panel.
4. Turn off all electric power to the appliance.
5. Turn gas line valve to “ON.”
6. Wait five minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, STOP! Follow “A” in the safety information above. If you do not smell gas, go to the next step.
7. Turn on all electric power to the appliance.
8. Turn on the remote thermostat if used, and set thermostat to desired setting. If remote is not used, activate the appliance using the display panel.
9. This appliance is equipped with an ignition device that automatically lights the burner. Do not try to light the burner by hand.
10. If the appliance will not operate, follow the instructions “TO TURN OFF GAS TO APPLIANCE,” and call your service technician or gas supplier.
11. Close bottom louver assembly or close the service access panel.





TO TURN OFF GAS TO APPLIANCE

1. STOP! Read the safety information above.
2. Open bottom louver assembly, or open the service access panel.
3. Turn off all electric power to the appliance.
4. Turn gas line valve to "OFF."
5. Close bottom louver assembly, or close service access panel.

WIRING

⚠ WARNING

Potential risk of fire, electric shock, and personal injury. Take precautions to reduce such risks.

⚠ CAUTION

Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.

This appliance is equipped with a three-prong grounding plug and should be plugged directly into a properly grounded three-prong receptacle. Do not cut or remove the grounding prong from this plug. For an ungrounded receptacle purchase an adapter which has two prongs and a wire for grounding.

Proper line voltage polarity must be maintained in order for the control system to operate correctly. Verify the incoming neutral line is connected to the white wire and the incoming "hot" line is connected to the black wire. The wall furnace will not operate properly unless the polarity and ground are correct.

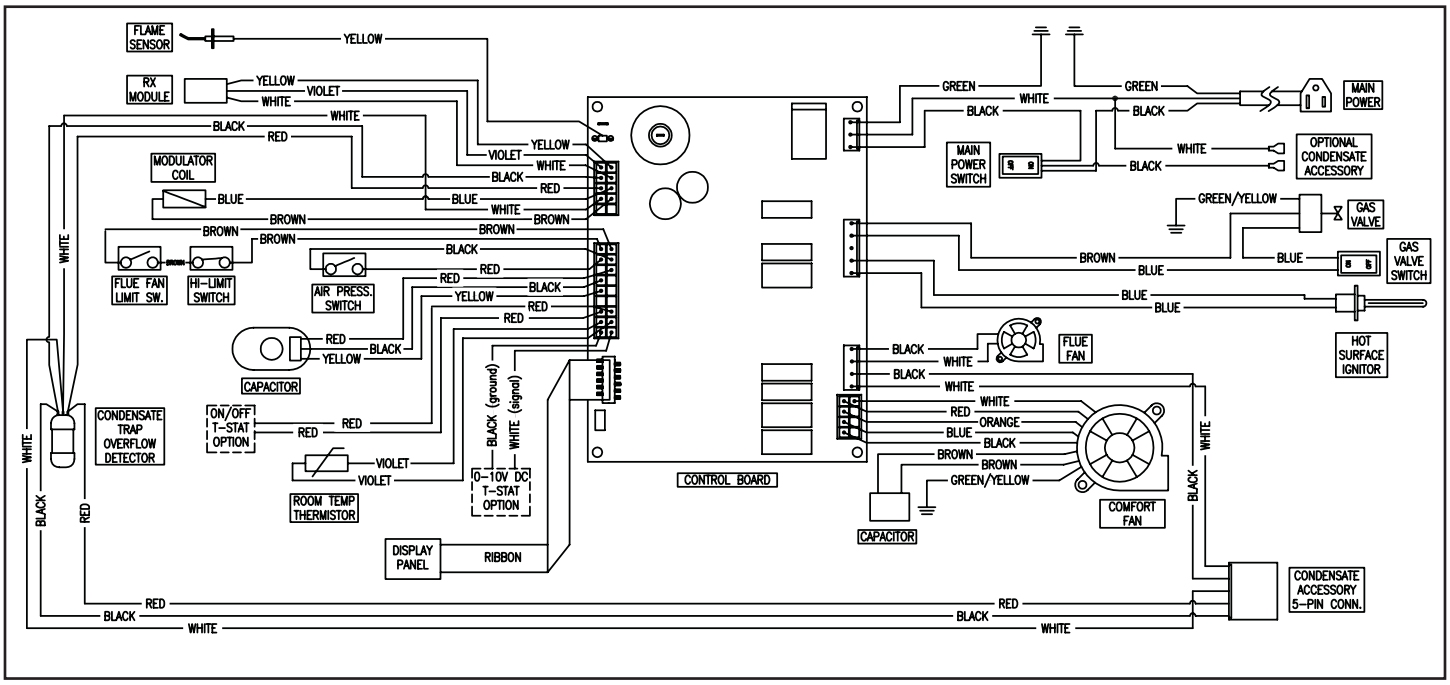


Figure 52

WALL FURNACE INSTALLATION

WIRING

Optional Controls

⚠ WARNING

Potential risk of fire, electric shock, and personal injury. Take precautions to reduce such risks.

⚠ CAUTION

Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.

External controls are available for use with the UltraSaver. See page 15. Connections for these controls are provided for easy installation. **See Figure 53.**

The terminal connection #1 is for use only with Empire's FRBTPL Wireless thermostatic remote.

The two red wire connections #2 and #3 are for use with low voltage (millivolt) controls systems or an On/Off switch. Install the controls according to the instructions for low voltage systems provided with the controls.

⚠ CAUTION

DO NOT use 24V or 120V controls with the millivolt connections as damage will occur.

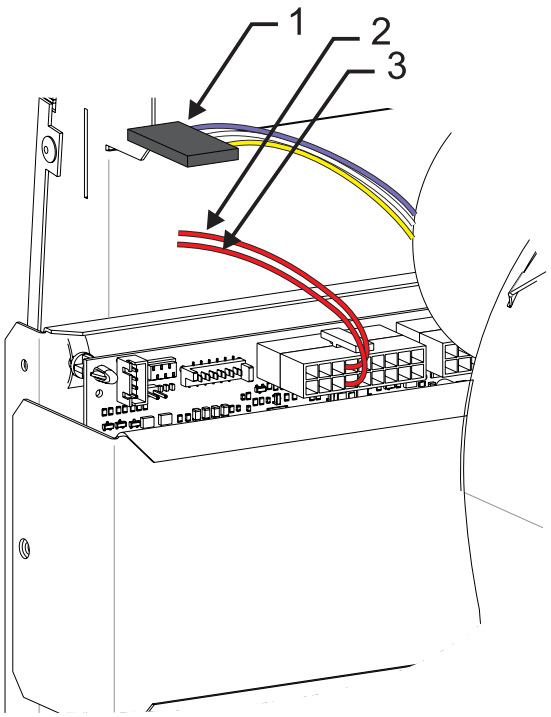


Figure 53

STARTUP CHECK LIST

⚠ WARNING

BEFORE OPERATING THIS APPLIANCE, CAREFULLY READ THE FOLLOWING.

1. Verify the gas line service does not exceed the maximum and minimum pressures. See Page 22.
2. Check and inspect the appliance for gas leaks. In the event of gas leaks, turn off the gas supply to the wall furnace immediately and call your gas supplier. Verify the gas line has been purged.
3. Verify that all exhaust and inlet air pipes are unobstructed and properly joined.
4. Visually verify the burner is free of dust and debris.
5. Verify that all panels are secured in place and that the casing front has been locked in position.
6. Verify that the polarity of the connections are correct and the line voltage power leads are secure.
7. After verifying and checking all the above points, proceed to lighting instructions. Refer to Page 32.

Notice: Verify any kits are installed per the instructions included with the kit.

High Altitude

The UltraSaver can be installed to altitudes up to 10,000 feet in the U.S. The installation must meet the requirements of the National Fuel Gas Code or local jurisdictions.

Paint Curing - First Firing

The UltraSaver has been painted with the high quality heat resistant silicon paint. To ensure that the paint is properly cured, allow the wall furnace to operate on High, for approximately one hour. During the initial firing of the appliance, it is common for smoke to appear.

⚠ CAUTION

DO NOT touch the surface of the wall furnace, the paint may soften during the initial operation. Once the paint is cured, it will not soften again.

- To prevent triggering of smoke alarms, supply proper ventilation to the room where the unit is installed.
- DO NOT clean the wall furnace with any caustic or abrasive cleaning solutions. This will damage the surface.
- Any damage to the painted surfaces should be repaired only with authorized paint available from your Empire Dealer.

A. With main electrical power to the wall furnace turned off, verify that any external controls are in the off position or are adjusted to a setting below room temperature.

B. Turn on the main electrical power to the wall furnace and turn on gas valve power switch. **See Figures 54 and 55.**

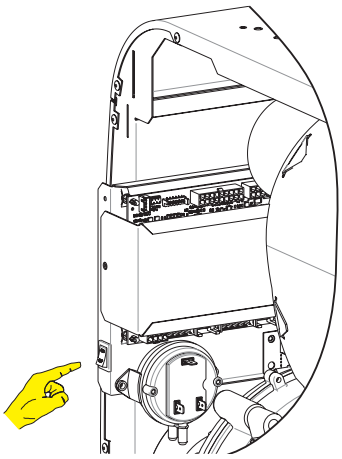


Figure 54

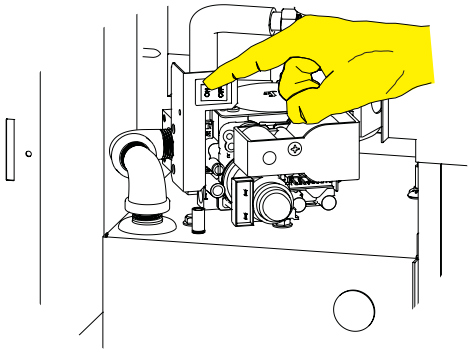


Figure 55

Verify power is on by checking if there is power to the control board. The red and green control board LED lights will begin flashing alternately. Each light will flash four times. Then the wall furnace will enter remote mode and the green LED light will begin to slowly flash. The display panel will show a "double dash symbol" (- -). **See Figure 56.**

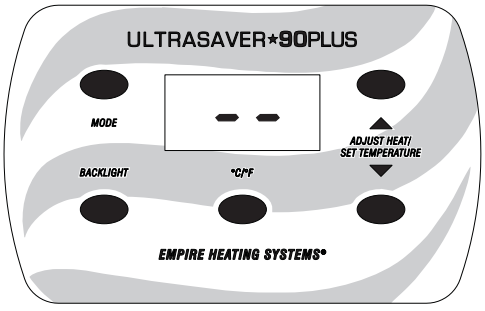


Figure 56

C. Turn on the main gas supply.

Sequence of Operations

1. Start the wall furnace by pressing the display panel's "Mode Select" button once from remote mode to start the wall furnace manually. **See Figure 57.** The Display Panel will energize, and the desired heat level will be displayed.

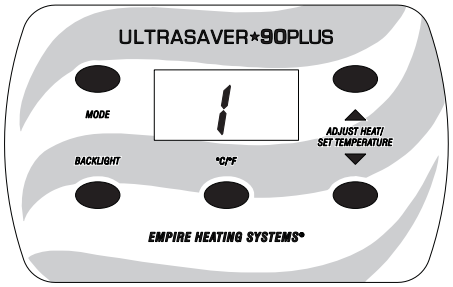


Figure 57

2. The inducer will activate and perform a safety test lasting 45 seconds. The ignition sequence will initiate after this test.
3. The Hot Surface Ignitor will start to glow red.
4. After 20 seconds, the gas valve will open and the burner will ignite on high. The flame sensor will verify the flame is present within six seconds and the green light on the control board will illuminate. The flame icon will display in the top left corner of the display panel once the controls verify the flame presence. **See Figure 58.**

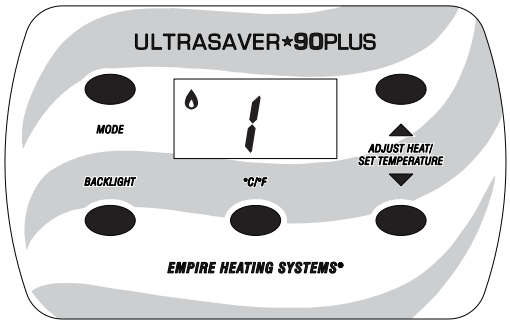


Figure 58

5. The gas valve will adjust manifold pressure and inducer speed to match desired heat level.

Notice: The wall furnace will always ignite on Level 5 (High) prior to adjusting to the heat level on the display panel.

Notice: The entire ignition sequence takes approximately one minute and 15 seconds to complete.

6. Use the "Adjustment" buttons on the display panel to change the heat level setting.

Notice: When changing from a low heat level to a higher heat level, the wall furnace will automatically increase to Level 5 (High) prior to proceeding to the desired heat level. This ensures consistent operation.

The table below outlines the BTU input rate of the wall furnace for each flame level.

Heat Level	BTU Input Single Tube	BTU Input Double Tube
5 (HI)	17,500	35,000
4	15,350	30,700
3	13,150	26,300
2	10,950	21,900
1 (LO)	8,750	17,500

Table 4

7. After 45 to 70 seconds, the circulating air blower will activate. The circulating air blower speed will be set by the heat level and will display on the Display Panel. **See Figure 59.**

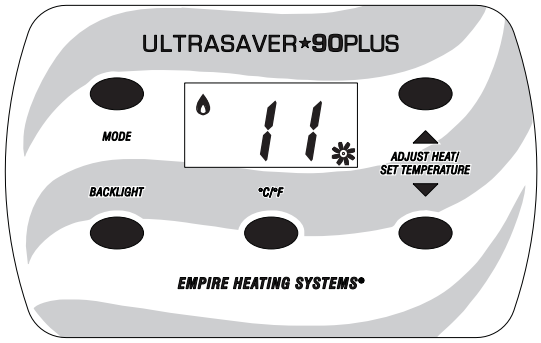


Figure 59

Display Backlight
The display panel backlight will automatically turn off five seconds after an input (either manual or remote) is acknowledged. The backlight will automatically turn on when a new input is acknowledged. To turn the backlight on manually, press the “Backlight” button on the bottom left of the display panel. See Figure 24, page 18.

Shut Down Instructions
To off turn the wall furnace, simply set the thermostat to a setting below the room temperature or push the display panel’s mode select button to “OFF”. See Figure 15, page 11. DO NOT cut the main electrical power to the wall furnace.

The circulating air blower will continue to operate after the burner is turned off. The blower will stop automatically after 100 to 160 seconds to ensure the wall furnace has cooled sufficiently.

Checking Manifold Pressure
Both Propane and Natural gas valves have a built-in pressure regulator in the gas valve. See page 22 for a list of the normal high and low manifold pressures.

A pressure tap accessible for test gauge connection is located on the outlet side of the gas control.

Blower Operation
The circulating air blower will automatically engage and increase in speed depending on the heat level. The circulating air blower will start 45 to 70 seconds after ignition of the burner.

Once the wall furnace is turned off or the call for heat has been satisfied, the circulating air blower will continue to run. The blower will automatically turn off 100 to 160 seconds after the wall furnace turns off to ensure proper cooling of the wall furnace.

TROUBLESHOOTING

TROUBLESHOOTING LCD CODES - NORMAL OPERATION

OPERATION	LCD DIGITS	CONTROL BOARD LED SEQUENCE
Power on sequence	Blank	Yellow LED permanently OFF
		Green and red LED blink four times alternately
Standby	" - -"	Yellow LED permanently OFF
		Red LED permanently OFF
		Green LED blinking slowly and continuously
Operation Safety Check	Desired flame level is shown	Yellow LED on at pressure threshold check
		Green and red LED's blink rapidly and alternately
Heat Request	Desired flame level is shown	Yellow LED permanently OFF
		Red LED permanently OFF
		Green LED blinking fast and continuously
Run	Desired flame level is shown	Red LED permanently OFF
		Green LED permanently ON

TROUBLESHOOTING LCD FAULT CODES ON THE DISPLAY PANEL

FAULT DESCRIPTION	LCD Digits	Description	ACTION
Anomaly such as parasitic flame, APT failure, or APS failure	Desired flame level is shown	Yellow LED permanently OFF	Turn off main electrical power to the wall furnace for 30 seconds then retry ignition.
		Green and red LED blink slowly and simultaneously	
Ignition lock-out	"A1"	Yellow LED permanently OFF	Check gas presence. Check flame detection probe. Check ignition probe.
		Red LED permanently ON	
		Green LED performs one blink followed by a one second pause	
High water level fault	"A2"	Yellow LED permanently OFF	Check that the drain tube is not clogged or crimped. If equipped with the optional pump accessory kit, check pump functionality. If equipped with the optional Humidification Tray accessory kit, check that the tray is level and functioning.
		Red LED permanently ON	
		Green LED performs two blinks followed by a one second pause	
Transducer fault	"A3"	Yellow LED permanently OFF	Check Air pressure sensor connection. Check fan functionality. Check for flue blockage.
		Red LED permanently ON	
		Green LED performs two blinks followed by a one second pause	
Pressure switch fault	"A4"	Yellow LED permanently OFF	Check transducer and pressure switch connections Check pressure switch device. Check inducer functionality. Check for flue blockage.
		Red LED permanently ON	
		Green LED performs 4 blinks followed by a one second pause	
Overheat lock-out	"A5"	Yellow LED permanently OFF	Check circulating air blower functionality. Check circulating air blower filter.
		Red LED permanently ON	
		Green LED performs 5 blinks followed by a one second pause	
Inadequate Combustion Airflow	"A7"	Yellow LED permanently OFF	Check for flue restriction.
		Red LED permanently ON	
		Green LED performs 7 blinks followed by a one second pause	
Room temp too high	"A8"	Yellow LED permanently OFF	Check thermostat functionality.
		Red LED permanently ON	
		Green LED performs 8 blinks followed by a one second pause	
Room temp sensor failure	"A9"	Yellow LED permanently OFF	Check temperature sensor connection.
		Red LED permanently ON	
		Green LED performs 9 blinks followed by a one second pause	

To reset the wall furnace, press the mode selection button on the display panel repeatedly until the wall furnace cycles through the "OFF" setting once. If the error has been cleared, the wall furnace will operate normally. If the error is still present, consult a qualified service technician.

MAINTENANCE & SERVICE

RECOMMENDED MAINTENANCE		
MAINTENANCE ITEM	FREQUENCY OF MAINTENANCE	
	MONTHLY BY HOME-OWNER	ANNUALLY BY SERVICE PERSON
Verify the area is free from combustible materials. See clearances on page 17.	X	X
Verify the combustion and ventilation air is not restricted.	X	X
Verify the flue and inlet pipes do not have any cracks or holes.		X
Verify burner flame.		X
Clean the blower compartment		X
Clean the burner.		X
Verify the condensate system is clean and leak free.		X
Clean the Filter	X	X
Winterization		As Needed (determined by weather)

The UltraSaver should be inspected and serviced annually by a qualified service person. This will ensure that the wall furnace is operating safely and efficiently. Should you suspect any abnormal operation, contact a service person that has been trained to service this product.

Maintenance for the Homeowner

Removing the Front Panel

It may become necessary to remove the front panel of the appliance to remove dropped or fallen objects.

Remove the front panel by lifting up then pulling out. Replace the panel by reversing this step.

⚠ WARNING

FOR YOUR SAFETY, TURN OFF POWER TO APPLIANCE.

⚠ WARNING

Do not operate this appliance without the front panel.

Cleaning the Filter

The filter is located on the back of the wall furnace. To clean the filter, first open the filter cover on the back of the wall furnace. **See Figure 60.**

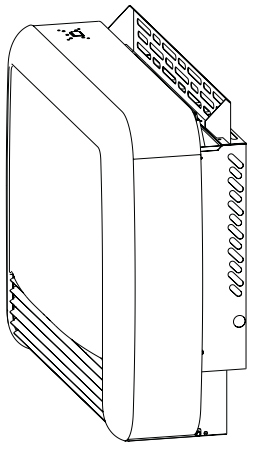


Figure 60

Next, remove the filter from the wall furnace by lifting it up and out. **See Figure 61.**

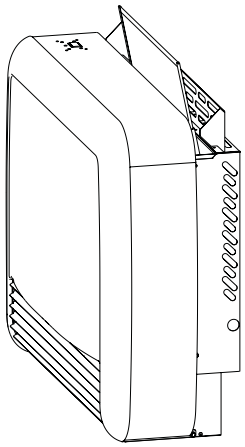


Figure 61

The filter may be rinsed with water or blown clean with compressed air. Allow the filter to dry completely before reinstalling it.

Maintenance for the Service Person

Circulating Air Blower

The circulating air blower should be checked and cleaned annually by a qualified service person to ensure that your appliance is operating efficiently. Any dirt or lint can affect the operation of the blower.

Heat Exchanger

The heat exchanger is located on the right side of the wall furnace. The heat exchanger should be inspected and cleaned annually by a qualified service person.

Winterization

If the wall furnace is exposed to below freezing temperatures the condensate system water trap will need to be winterized to prevent damage to the wall furnace.

1. Remove the front cover assembly by carefully lifting up and then pulling out away from the wall furnace.
2. Remove the front louver assembly by removing the four screws (two each end) securing it to the outer casing.
3. Turn off the wall furnace's main power switch.
4. Remove the clear hose from the front drain tap on the inducer housing. **See Figure 62.**
5. Drain the end into a container. Make sure there are no sags or kinks in the hose that could prevent draining. **See Figure 63.**
6. Replace the hose onto the inducer housing when all the condensate has been drained.
7. Replace all panels.

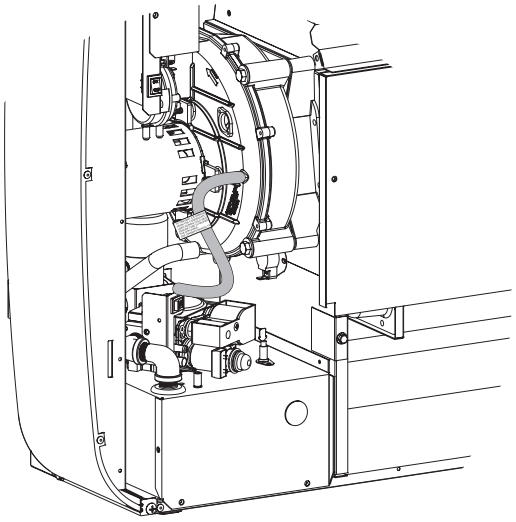


Figure 62

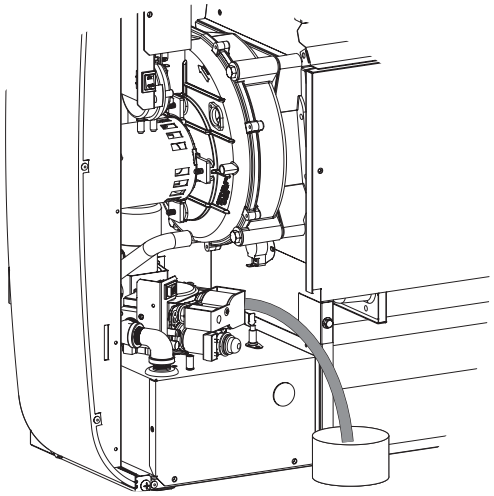


Figure 63

PARTS LIST

⚠ WARNING

Use only manufacturer's replacement parts. Use of any other parts could cause injury or death.

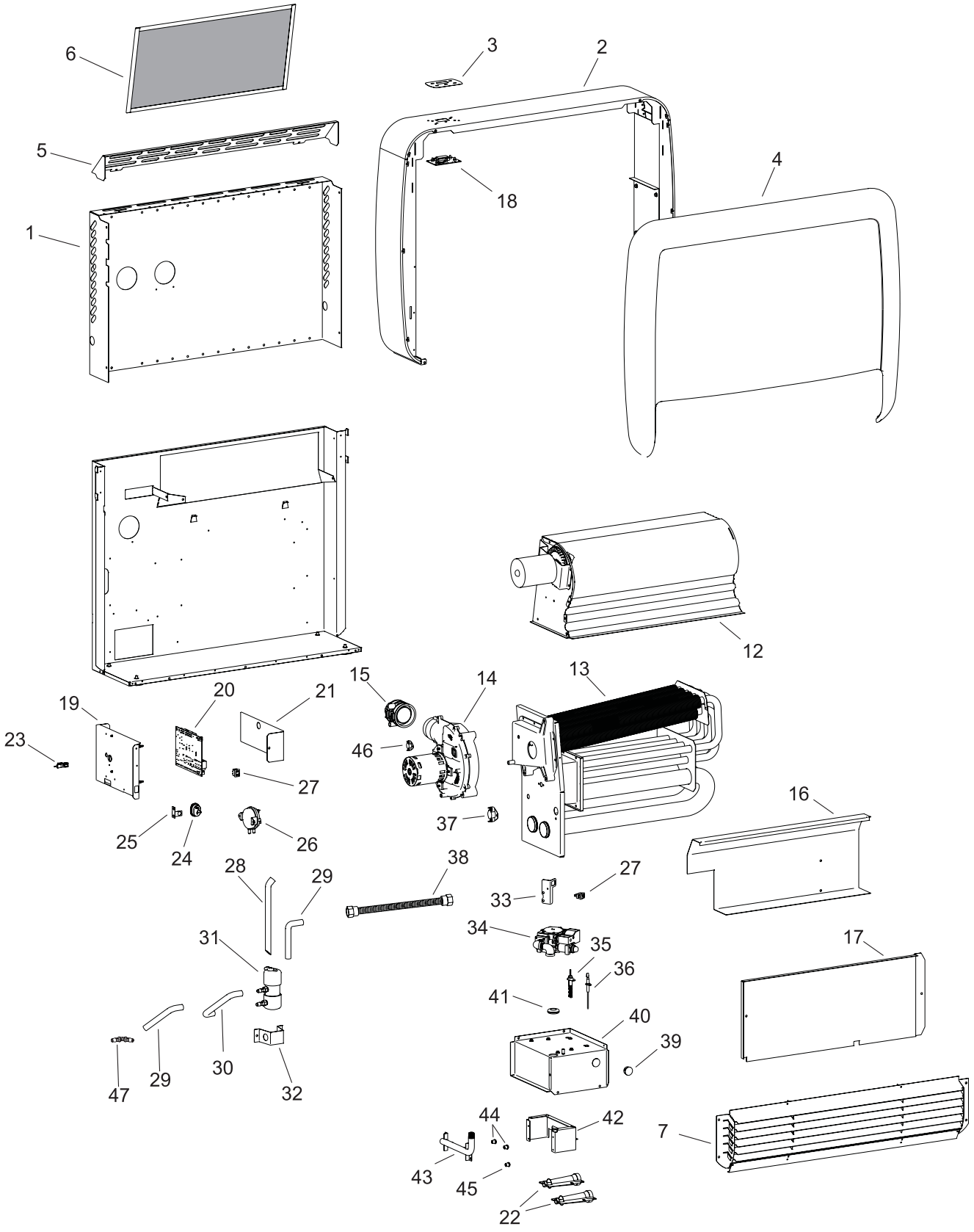
INDEX NO.	PART NO.		DESCRIPTION
	PVS18	PVS35	
1	31544	31544	REAR SHROUD
2	31842	31842	OUTER CASING ASSEMBLY
3	R11623	R11623	LABEL, CONTROL DISPLAY
4	31839	31839	OUTER FRONT ASSEMBLY
5	31545	31545	AIR FILTER DOOR
6	R11645	R11646	FILTER
7	31840	31840	LOUVER ASSEMBLY
12	31850	31784	BLOWER ASSEMBLY
13	32266	32267	HEAT EXCHANGER ASSEMBLY
14	R11611	R11611	INDUCER ASSEMBLY
15	R11651	R11651	FLUE ADAPTER
16	31549	N/A	AIR BAFFLE
17	31550	31550	INNER FRONT COVER
18	R11189	R11189	DISPLAY PANEL WITH CABLE
19	31517	31517	CONTROL PLATE
20	R11284-01	R11284-02	CONTROL PANEL
21	31518	31518	CONTROL COVER PLATE
22	R2541	R2541	BURNER (2 REQ'D FOR PVS35 UNITS)
23	R11603	R11603	THERMISTER ASSEMBLY
24	R11195	R11195	TRANSDUCER
25	30102	30102	TRANSDUCER BRACKET
26	R11391	R11391	PRESSURE SWITCH
27	R2522	R2522	ON/OFF SWITCH
28	R11620	R11620	TUBING, FLUE ADAPTER TO TRAP
29	R11619	R11619	TUBING, COLLECTOR BOX TO TRAP
30	R11618	R11618	TUBING, INDUCER TO TRAP

INDEX NO.	PART NO.		DESCRIPTION
	PVS18	PVS35	
31	R11617	R11617	CONDENSATE TRAP
32	31540	31540	CONDENSATE TRAP BRACKET
33	30376	30376	VALVE SWITCH BRACKET
34	32268	32268	VALVE ASSEMBLY - NAT
34	32269	32269	VALVE ASSEMBLY - LP
35	R11605	R11605	HOT SURFACE IGNITOR
36	R2543	R2543	FLAME SENSOR
37	R11644	R11644	LIMIT SWITCH, EXCHANGE
38	R10961	R10961	FLEX LINE
39	R11607	R11607	VIEWING WINDOW
40	32270	32271	BURNER COMPARTMENT WITH GASKETS
41	R11606	R11606	MANIFOLD GROMMET
42	31569	31569	BURNER / MANIFOLD SUPPORT BRACKET
43	R11571	R11571	MANIFOLD ASSEMBLY
44	P88135	P88135	ORIFICE - LP (2 REQ'D FOR PVS35 UNITS)
44	P8847	P8847	ORIFICE - NAT (2 REQ'D FOR PVS35 UNITS)
45	R11599	N/A	HEX PLUG
46	R11673	R11673	LIMIT SWITCH, INDUCER
47	R11732	R11732	FITTING, BARBED 90
N/S	R11512	R11512	WIRE HARNESS, MAIN
N/S	R11602	R11602	WIRE HARNESS, POWER
N/S	R11601	R11601	CORD SET
N/S	R10442	R10442	LEVELING BOLTS (4 REQ'D)
N/S	R11649	R11649	DRAIN TUBE
N/S	R11283	R11283	TERMINAL CONNECTOR - LP ONLY

N/S - Not Shown

Important
All correspondence regarding repair and service should refer to complete Model Number, Serial Number and type of gas.

EXPLODED VIEW



MASTER PARTS DISTRIBUTOR LIST

To Order Parts Under Warranty, please contact your local Empire dealer. See the dealer locator at www.empirecomfort.com. To provide warranty service, your dealer will need your name and address, purchase date and serial number, and the nature of the problem with the unit.

To Order Parts After the Warranty Period, please contact your dealer or one of the Master Parts Distributors listed below. This list changes from time to time. For the current list, please click on the Master Parts button at www.empirecomfort.com. Please note: Master Parts Distributors are independent businesses that stock the most commonly ordered Original Equipment repair parts for Heaters, Grills, and Fireplaces manufactured by Empire Comfort Systems Inc.

Dey Distributing
1401 Willow Lake Boulevard
Vadnais Heights, MN 55101

Phone: 651-490-9191
Toll Free: 800-397-1339
Website: www.deydistributing.com
Parts: Heater, Hearth and Grills

Victor Division of F. W. Webb Company
200 Locust Street
Hartford, CT 06114

Phone: 860-722-2433
Toll Free: 800-243-9360
Fax: 860-293-0479
Toll Free Fax: 800-274-2004
Websites: www.fwwebb.com & www.victormfg.com
Parts: Heater, Hearth and Grills

East Coast Energy Products
10 East Route 36
West Long Branch, NJ 07764

Phone: 732-870-8809
Toll Free: 800-755-8809
Fax: 732-870-8811
Website: www.eastcoastenergy.com
Parts: Heater, Hearth and Grills

Able Distributors
2501 North Central Avenue
Chicago, IL 60639

Phone: 773-889-5555
Toll Free: 800-880-2253
Fax: 773-466-1118
Website: www.abledistributors.com
Parts: Heater

HOW TO ORDER REPAIR PARTS

Parts Not Under Warranty

Parts can be ordered through your Service Person, Dealer, or a Master Parts Distributor. See this page for the Master Parts Distributors list. For best results, the **service person or dealer** should order parts through the distributor. Parts can be shipped directly to the **service person/dealer**.

Warranty Parts

Warranty parts will need a proof of purchase and can be ordered by your Service Person or Dealer. Proof of purchase is **required** for warranty parts.

All parts listed in the Parts List have a Part Number. When ordering parts, first obtain the Model Number and Serial Number from the name plate on your equipment. Then determine the Part Number (**not** the Index Number) and the Description of each part from the following illustration and part list. Be sure to give all this information . . .

Appliance Model Number _____ Part Description _____

Appliance Serial Number _____ Part Number _____

Type of Gas (Propane or Natural) _____

Do not order bolts, screws, washers or nuts. They are standard hardware items and can be purchased at any local hardware store.

Shipments contingent upon strikes, fires and all causes beyond our control.

WARRANTY

Empire Comfort Systems Inc. warranties this space heating product to be free from defects at the time of purchase and for the periods specified below. Space heating products must be installed by a qualified technician and must be maintained and operated safely, in accordance with the instructions in the owner's manual. This warranty applies to the original purchaser only and is not transferable. All warranty repairs must be accomplished by a qualified gas appliance technician.

Limited Ten-Year Parts Warranty – Combustion Chamber

Empire promises to the owner that if the combustion chamber (see parts list) fails because of defective workmanship or material with ten years from the date of purchase, Empire will repair or replace at Empire's option.

Limited Five-Year Parts Warranty – All Other Components (Except Thermostats)

Should any part fail because of defective workmanship or material within five years from the date of purchase, Empire will repair or replace at Empire's option.

Limited Two-Year Labor Warranty – All Components (Except Thermostats)

Within two years from the date of purchase, Empire will pay reasonable labor to have defects repaired at Empire's option.

Limited One-Year Parts Warranty – Remote Controls, Thermostats

Should any remote control or thermostat fail because of defective workmanship within one year from the date of purchase, Empire will repair or replace at Empire's option.

Duties Of The Owner

The appliance must be installed by the selling dealer or his designated installer and operated in accordance with the instructions furnished with the appliance.

A bill of sale, cancelled check, or payment record should be kept to verify purchase date and establish warranty period.

Ready access to the appliance for service.

What Is Not Covered

Damages that might result from the use, misuse, or improper installation of this appliance.
Travel, diagnostic costs and freight charges on warranted parts to and from the factory.
Claims that do not involve defective workmanship or materials.
Unauthorized service or parts replacements.
Removal and reinstallation cost.
Inoperable due to improper or lack of maintenance.

How To Get Service

To make a claim under this warranty, please have your receipt available and contact your installing dealer. Provide the dealer with the model number, serial number, type of gas, and purchase verification. The installing dealer is responsible for providing service and will contact the factory to initiate any warranted parts replacements. Empire will make replacement parts available at the factory. Shipping expenses are not covered.

If, after contacting your Empire dealer, service received has not been satisfactory, contact: Consumer Relations Department, Empire Comfort Systems Inc., PO Box 529, Belleville, Illinois 62222, or send an e-mail to info@empirecomfort.com with "Consumer Relations" in the subject line.

Your Rights Under State Law

This warranty gives your specific legal rights, and you may also have other rights, which vary from state to state.

Empire Comfort Systems Inc.
918 Freeburg Ave. Belleville, IL 62220

If you have a general question about our products, please e-mail us at info@empirecomfort.com.
If you have a service or repair question, please contact your dealer.